Students Library of Education

Education, Work and Leisure

Harold Entwistle

R K P
NET

Education, Work and Leisure

HAROLD ENTWISTLE

This book points to the failure of much present day educational theory to come to terms with the problem of vocational education. The author argues that work is central to human culture and essential for personal fulfilment. Thus, any educational enterprise which begins from the assumption that its concern is with the development of persons must acknowledge the importance of education for work. Dr. Entwistle distinguishes between technical, vocational, general and liberal education. He discusses the implications of these concepts for the work of schools and colleges, particularly in the light of a future automated society. Rather than creating problems of increased leisure, automation will lead to problems of satisfaction in work and of social organisation. Thus the book concludes with a consideration of possibilities for moral, aesthetic, social and political education in the future.

C.L. 37
20.1.87
3872
10.3.87
£1.95

Education, Work and Leisure

STUDENTS LIBRARY OF EDUCATION

GENERAL EDITOR:
J. W. Tibble
Emeritus Professor of Education
University of Leicester

EDITORIAL BOARD:
Psychology of Education:
Professor Ben Morris
University of Bristol

Philosophy of Education:
Professor Richard S. Peters
University of London

History of Education:
Professor Brian Simon
University of Leicester

Sociology of Education:
Professor William Taylor
University of Bristol

Volumes dealing with curriculum studies, methodology and other more general topics are the responsibility of the General Editor, Professor Tibble.

/c

Education, Work and Leisure

by *Harold Entwistle*

Department of Education
Sir George Williams University, Montreal
(Formerly Department of Education
University of Manchester)

LONDON
ROUTLEDGE & KEGAN PAUL
NEW YORK: HUMANITIES PRESS

S.C.E.R.T., W
Library
Calcutta
25/3, B. C. Ro

First published 1970
by Routledge & Kegan Paul Ltd
Broadway House, 68-74 Carter Lane, E.C.4
Printed in Great Britain by
Northumberland Press Ltd
Gateshead
© *H. Entwhistle 1970*
No part of this book may be reproduced
in any form without permission from
the publisher, except for the quotation
of brief passages in criticism.
SBN 7100 6683 X (C)
SBN 7100 6684 8 (P)

.C.E R T., West Bengal
Date 10 : 3 : 87
Acc. No. ~~3872~~ 3872

370·1
ENT

THE STUDENTS LIBRARY OF EDUCATION has been designed to meet the needs of students of Education at Colleges of Education and at University Institutes and Departments. It will also be valuable for practising teachers and educationists. The series takes full account of the latest developments in teacher-training and of new methods and approaches in education. Separate volumes will provide authoritative and up-to-date accounts of the topics within the major fields of sociology, philosophy and history of education, educational psychology, and method. Care has been taken that specialist topics are treated lucidly and usefully for the non-specialist reader. Altogether, the Students' Library of Education will provide a comprehensive introduction and guide to anyone concerned with the study of education, and with educational theory and practice.

J. W. TIBBLE

The alleged distinction between 'education for life' and 'education for work' has long bedevilled educational thought and practice in this country, and in this book Dr. Entwistle does much to expose the fallacies on which this and other similar distinctions are based. He shows that ideas on this subject are inextricably intertwined with wider views on the nature of culture, the limits of individual educability and the provision of educational opportunities, and that the heritage of nineteenth-century opinion that still features so prominently in many popular analyses of issues today is a serious handicap to our coming to grips with the challenges of automation and technological change.

There are few subjects on which students need to be well informed that are more important than this; students entering colleges of education today will not retire until well into the second decade of the twenty-first century. If they are to be in a position intelligently to face the problems of education and social development that will occur between now and then, they need a balanced and up-to-date appraisal of the meaning of work and leisure in modern society; it is this which this book sets out to provide.

WILLIAM TAYLOR

Contents

1 Education: for Living or Earning a Living? 1

2 Leisure, Work and Personal Realisation 11
The correlative functions of work and leisure 11
The cultural value of work 14
(i) Marx on work 16
(ii) Religion and work 20
(iii) Freud on work 22
(iv) Work and the liberal-democratic ideology 23
Conclusion 25

3 Employment Opportunities in an Automated Economy 28
Automation defined 30
The economics of automation 33
Employment opportunities in an automated economy 35
(i) Industry and its ancillary occupations 35
(ii) Non-industrial services and professions 38
Conclusion 41

4 Automation and the Limits of Human Educability 43

5 The Vocabulary of Vocational Education 49
Technical training and technical education 52
Vocational education 55
General education 60
Liberal education 63
Conclusion 67

6 Technical Education 68
The limitations of industrial retraining 68
Apprentice training or technical education? 69
Conclusion 77

7 Vocational Education in Schools 78
Vocational education and the interests of children 80
Technical education in schools 86
Vocational orientation and the school 89

8 Moral, Aesthetic, Social and Political Education in an Automated Society 96
Moral and aesthetic education 97
Social education 103
Political education 107
Conclusion 108

9 Conclusion 109

Bibliography 113

Suggestions for Further Reading 118

1

Education: for Living or Earning a Living?

'Education instead of being a good in its own right, too precious to be bought and sold, has sunk to being a means to material ends, to career and status and economic growth.' This extract from a letter to the *New Statesman* epitomises a perennial conviction of English educationists that educational institutions ought to foster only those activities which are intrinsically valuable. A great deal of contemporary educational discussion proceeds from the distinction between the pursuit of intrinsic and extrinsic values in education. Those activities which seem essentially instrumental or utilitarian, designed to further objectives and interests lying outside themselves, are thought an improper concern of the educational system. Thus, MacIntyre argues that the proper end of education is 'to help people to discover activities whose ends are not outside themselves . . . The critical ability which ought to be the fruit of education serves nothing directly except itself, no one except those who exercise it . . . above all the task of education is to teach the value of activity for its own sake'. (pp. 19-21)

On this view it would seem that education cannot be concerned with preparation for work. Vocational education must be a casualty of the stress upon intrinsically valuable activities: it seems to be the utilitarian activity *par excellence*. On the view that intrinsically valuable activities are the only proper educational preoccupation, education must be primarily concerned with leisure, since it is in the period of time which is a residue from the working day that men engage in those pursuits which provide their own satisfactions.

The object of this study is to call into question this received view that education is concerned primarily with leisure. It attempts to justify vocational education, not as something which may be allowed as a peripheral concern of educational institutions, but as something central and fundamental to the process and purpose of education. It argues that a prime objective of education is to bring the individual to a point where he can do a job of work with such skill, intelligence, taste and responsibility, that his occupation becomes a source of creative and satisfying living.

Since the Second World War, and particularly during the past decade, there has been considerable expansion of technical education and vocationally biased courses in secondary schools. Despite this trend (or perhaps because of it), the slogan that 'education is for living, not earning a living' is having a new lease of life. Vocational education has rarely stood in high esteem with English educationists and, for many, the fact that we now have more of it is increasingly a cause for alarm. Yet it is far from satisfactory that a sector of public education which commands an increasing proportion of our resources should evoke such widespread antipathy and should lack any coherent theoretical justification. This absence of any theory of the place of work in education and in life is a major lacuna in English educational thought, for a concept of work is fundamental to any justification of vocational education. It may be that no acceptable theory of vocational objectives is possible: perhaps the learning of techniques must inevitably be categorised as mere 'training' or 'instruction', words usually having pejorative overtones when used by English educationists. However, in default of a considered theory of vocational education, our attitudes towards it remain curiously ambivalent.

There are some who are convinced that education cannot avoid having vocational objectives. The consumer of educational services is certainly apt to value education according to economic criteria. In the parent's esteem, his child's education stands or falls by its ability to qualify him for a good job. Almost 90 per cent of the parents questioned for the Schools Council's survey of *Young School Leavers* thought that the schools should teach 'things which would enable their child to get as good a job as possible'. (para. 61) In the case of the school leavers themselves, 86 per cent of boys and 88 per cent of girls agreed about the vocational functions of the school (pp. 33-4) and a similar proportion of nineteen- to twenty-year-olds, having had experience of the work situation, shared this view. (para. 57) The survey concluded: 'Both fifteen-year-old leavers and their parents very widely saw the provision of knowledge and skills which would enable young people to obtain the best jobs and careers of which they were capable as one of the main functions that a school should undertake'. (para. 71) However, the suspicion that educationists view vocational education with less enthusiasm is confirmed in the survey's finding that fewer than half (47 per cent) of teachers questioned included careers items in their lists of the school's functions. Headmasters were even less sympathetically disposed towards vocational objectives: only 28 per cent of those questioned included vocational items in their lists of the school's objectives. (p. 42)

In themselves, parental demands provide no warrant for arguing that education *ought* to prepare young people to earn a living. From an educationist's point of view, parents might be thought to have quite unacceptable systems of values: in wanting a particular sort of technical or professional education for their children, they may even merely be wishing to fulfil, vicariously, their own frustrated ambitions. Or they may be obsessed with the need to 'keep up with the Joneses, infected with the egocentric philosophy of 'I'm all right Jack' and eager to gain unfair advantages for their own children in 'the rat race'. Indeed, it has become a commonplace with some educationists to associate vocational education with all the suspect values of the acquisitive affluent society.

This distaste for our industrial society and its values is exemplified by some of our more prolific writers on education. For example, Holbrook, in a chapter headed 'Aims: for living or earning a living?' (in the midst of an otherwise compelling plea for a more sensitive and imaginative approach to the teaching of English), displays an entirely negative approach to the vocational aspects of an industrial society. In his view, it seems that to show an interest in work is to be infected with greed. Now, it is difficult to disagree with anyone who reminds us that the values which pervade our industrial and commercial life leave a great deal to be desired. And if the only motive for work and for vocational education is selfish status-seeking, there is room for concern. Those educationists who support the development of vocational courses in schools are not always as helpful as they might be in this respect. It was unfortunate that the Crowther Report could find no more liberal rationale to commend extended courses in secondary modern schools than that the children who follow them 'get something that the others have not got'. (para. 109)

But to concede that we sometimes support vocational education for the wrong reasons does not free us from the obligation of enquiring how far we ought to promote it as a contribution towards the liberal education of every person who passes through our educational system. We do no service to the young if, having ourselves no positive and healthy philosophy of work, we cause them to turn their backs on the industrial society and foster attitudes to daily work, first of indifference and then, inevitably, of contempt and irresponsibility. Indeed, to encourage these attitudes is to render us culpable for whatever abuses of the human spirit follow from our modes of industrial and commercial organisation. The idea that we should concentrate on education for leisure is sometimes argued on the grounds that young people spend half their waking hours away from work. But, by the same token, they are destined to spend the other half of their waking life in industry or commerce, and one suspects any educational theory or practice which, by intention or default, leaves them unfitted to come to grips with this experience as a source of responsible, skilled and satisfied living. It would be dangerous, even immoral, to communicate to a majority of schoolchildren the distaste and contempt for economic activity which characterises some educational literature. To write of educating children to become responsible parents and citizens whilst adopting no more than a negative attitude to the human activity which alone makes these things possible is the worst kind of sophistry. Any teacher does a disservice to his children who even implies that work is ever irrelevant or equates the wish to earn a living with greed. If we do have an acquisitive society, if our only concern with work is to be rid of it as soon as possible in order to begin the business of 'real' living, these are attitudes to work which ought to be challenged by those who influence the young.

The view that education is for living, not earning a living (which usually develops into advocacy of education for leisure) is sometimes derived from sincerely held convictions about the character of the good life. But other opposition to vocational education often has less respectable credentials. Advocacy of education designed to raise the level of communal skill, still meets with the objection, 'But who will be left to empty the dustbins?' For example, a correspondent to a popular daily newspaper writes (a letter headed 'Who will collect the rubbish?'): 'If our educationists have their way and give all children a super expensive education from what source in the future will we obtain the following kinds of workers: navvies, bargees, dock and other labourers, fishermen, seamen, sweeps, refuse collectors, sanitary workers, grave diggers, blacksmiths, lorry drivers, farm workers, etc.? I maintain that ordinary teaching of the three R's is all that prospective workers in these and allied occupations need and that it is nothing short of a scandal to close village schools and instil town ideas into the minds of country children'. (*Daily Express*, 6th November 1961) Before dismissing this, it is interesting to note that even the liberal and progressive *Guardian* is troubled by society's imperative need to throw up human scavengers: a recent leading article concluded that we cannot escape the social problems occasioned by the fact that low-grade labour will always be required to sweep the London Underground.

Thus, there still survives from the nineteenth century the spectre of a community in which too many people might be raised too far above their station in life. If we are not careful, this argument runs, when everyone is educated for a skilled occupation no one will be willing to do society's routine and degrading work. This conception that schooling should attempt to confine the poor to that station in life to which their Maker has called them is by no means dead, even amongst students of education. If challenged, most of these educational conservatives would be sufficiently progressive to protest that every individual should have the chance to realise his true potential: in every schoolboy's satchel there is a directorship of I.C.I. But the spectre of the dustbins dies hard. It seems that somebody will always have to collect refuse and is there not a danger that if everyone has vocational education (or good liberal education, for that matter) we shall find insufficient people to do our scavenging for us? In any case, this argument runs, as if to clinch the matter, menial occupations are all that some people are fit for: natural endowment inevitably restricts their educability. This is obviously an important point and it appears to find ample justification in experience. It has the respectability of being the received wisdom about the distribution of intelligence and the limits of human abilities. This is an argument to which we must return. But at least, the initial assumption about the inevitability of there always being unpleasant work to do is falsified by the facts of modern technology. A civilisation which is within reach of colonising outer space can surely make the dustbin obsolete.

Misunderstanding of the nature of vocational activity in an automated economy underpins a slightly different conviction that, whatever our preferences in the matter might be, vocational education becomes irrelevant to a growing number of people, since the increasing mechanisation of industry requires an army of unskilled workers who must look for personal fulfilment through their leisure. Indeed, to be progressive in education is still to think in terms of how to help the masses, slaves to the conveyor belt, to come to terms with this experience. On this view, technical training for most people is irrelevant. Industry requires people to be unthinking automata: it is the graveyard of enterprise and skill.

In fact the vision of Chaplin's *Modern Times* and of Huxley's *Brave New World* is happily out of date. Automated industry relieves human beings of the tedium of repetitive work. But so unprepared are we for the likely changes in employment opportunities in the not-too-distant future, so obsessed are we with the apparent inevitability of man's becoming increasingly the slave of the machine, that a Professor of Education could, in 1961 and in all seriousness, define the problem of education as it affects workers of the future as follows:

> On leaving school many of them will enter the world of the conveyor belt. In this world young persons are living two lives at the same time—a nut-tapping life and a dream life. The problem for teachers is: How shall we enrich the young worker's dream life? And the solution . . . probably lies in richly educated emotions, so that whilst he is turning his screws and she is filling her cigarette packet, day-dreams arise from a healthier subconscious. (Castle, p. 200)

The remarkable thing about this negative attitude to the work situation is that anyone professing concern for the quality of human life could accept so complacently that any part of working life should be spent in this sort of 'alienated', meaningless, non-intelligent activity, utterly devoid of dignity. For, whilst accepting the economic necessity for work, this viewpoint regards it as something which can itself engage nothing of the personality of most people, so that they are urged to find relief from its tedium in a fantasy world, with the inevitable debilitating consequences for their capacity to confront the realities of social, family and political life. And to criticise this attitude is not to deny that the inevitable day-dreaming of adolescents should arise from the healthiest possible subconscious. But something is seriously wrong with educational and social attitudes which are resigned to the fact that the majority of our fellow men can find no personal satisfaction through work itself: for whom the richest and most significant living is in a fantasy world divorced from reality. Inevitably this retreat into make-believe will not be confined to working hours. It will carry over into leisure time when people ought to be coming to grips with the economic, social, political and personal realities of everyday life in our industrial society.

Thus, the failure to worry about the dehumanising effect of routine, monotonous work is sometimes justified by the argument that many of the people who do this sort of work really enjoy it because it frees the mind to day-dream. But the argument that 'they like it' is particularly spurious when advanced by educationists whose function, by definition, is concerned with human improvement: drug addicts like heroin, burglars like crime, fascists enjoy Jew- and negro-baiting—and so on. Others have been less sanguine in their evaluation of this day-dream condition. Fromm saw it as 'a dangerous non-relatedness to reality'. (1956, 288) For Durkheim it was 'anomie': 'a restless movement, a planless self development, an aim of living which has no criterion of value and in which happiness lies always in the future and never in any present achievement'. (1966, 449) And he rejected completely the idea that the unfortunate effects of extreme division of labour could be mitigated through the provision of a compensatory general education. Durkheim's analysis has a ring of truth which eludes writers like Castle and Holbrook. He argued: 'Suppose that we can thus relieve some of the bad effects that are attributed to the division of labour: that is not a means of preventing them. The division does not change its nature because it has been preceded by general culture. No doubt it is good for the worker to be interested in art, literature, etc, but it is nonetheless bad that he should be treated as a machine all day long'. (Durkheim, 1964, 370)

Both the anti-vocational arguments we have considered—from the 'myth of the dustbins' and from the supposed irrelevance of vocational education for the conveyor-belt operatives—derive what validity they have from a pre-automated economy. Hence, from failure of imagination their practical value is negligible. They accept the demoralising effect of work as inevitable and fail to envisage a society in which things might be ordered differently. That such arguments should still be advanced in educational literature is a measure of how little the social, economic and educational implications of automation are understood. The logic of automation, as we shall presently see, is not that it creates armies of unskilled workers, but that it makes the unskilled redundant. This eventuality is apt to be celebrated either by extreme optimism or pessimism, both unrealistic. The optimists see automation ushering in a Golden Age of Leisure. They anticipate such a dramatic reduction of the working week that the educational problem confronting us is assumed to be one of teaching people how to use leisure profitably, not of preparing them for a life of work. As we shall see, this utopian outcome is quite unrealistic from an economic point of view. But what is also open to question is how far the leisure myth is psychologically well founded. We must now discuss whether work has a cultural, no less than an economic function, in relation to the human condition.

2

Leisure, Work and Personal Realisation

The correlative functions of work and leisure

Even if the creation of greatly increased leisure were a possible consequence of technological innovation, one would be forced to ask whether this would be a good thing. Leisure is undoubtedly a human good: but like many other good and valuable experiences, it is possible to have too much of it. The sixteen-hour working day, common in the nineteenth century, was obviously unacceptable and, no doubt, there remain contemporary injustices associated with overwork in some occupations. But how far towards a zero working week ought we to move? What is the optimum balance between work and leisure? Is it conceivable that men could have such a surfeit of leisure that 'there would come a point where additional increments of leisure would prove more stultifying than satisfying and that the mass of men would be incapable of absorbing any more'? (Riesman, 1964, 164) Posing the problem in this way assumes that work is itself a human good and prompts the further question of how far there is a positive correlation between the quality of a person's work and that of his leisure.

Experience suggests that, on the whole, those with interesting and culturally valuable leisure are those who are called upon to exercise judgement, intelligence, taste and discrimination in their work. It is a myth, cultivated by those who have never done dull repetitive work, that the tedium of the conveyor belt can be redeemed by creative leisure activity or by enriched day-dreaming: that you can spend half your waking hours degrading yourself and the other half in self-improvement. This was Tilgher's view of the work-leisure relationship: 'the life of the spirit is better served by a system which, after turning the worker into a machine for six or seven hours, sends him home a man among men, free if he likes, to share in the life of the spirit in all its forms, than by a system like artisanship which limits the working-man's whole inner life to the shaping by his hands of a product always the same'. (1931, 161) Against this view, Mace has argued that adequate compensation for monotonous work activity can never be satisfactorily found by turning merely to a different sort of compensatory activity outside work: 'It would seem that any satisfactory solution should take account of the fact that man can stand the contrast between interest and dullness if the contrast resides *within* his work rather than *between* his major occupation and some alternative activity. It must in the last resort be the work itself which has compensations'. (1948, 10)

Durkheim concluded the observation we quoted earlier, on the futility of trying to redeem the worker from the ill-effects of division of labour through general education, with the comment: 'Who cannot see, moreover, that two such existencies are too opposed to be reconciled, and cannot be led by the same man? If a person has become accustomed to vast horizons, total views, broad generalities, he cannot be confined, without impatience, within the strict limits of a special task.' In fact, for most men, far from releasing energy for creative uses of leisure, repetitive work dulls the appetite for what is culturally more rewarding. On the whole, the perpetrators of the dustbin myth are more realistic in their assumptions that an educated mind does not go with routine occupations. On every hand there is evidence that those whose leisure time is richly and creatively filled are those whose work is interesting and demanding. And despite obvious exceptions, the reverse is true: where leisure activities strike us as trivial they are frequently the pursuits of those engaged in work of a humdrum or routine character. Friedmann underlined how difficult it is to sustain the faith that the conveyor-belt operative can be saved by the quality of his leisure. He concluded that 'everything points to the growing importance of leisure time for the humanisation of our technical civilisation'. (1961, 121) Yet he also observed that leisure, as it entered into the lives of highly specialised workers, was a pathological escapism. (111-12) He gave no indication of how the culturally barren leisure of what he called 'the industrial idiot' might become an integral part of a life having a sense of direction and purpose. It is perhaps because he saw the intractability of this paradox that Reisman, who had concluded in *The Lonely Crowd* that man's salvation lay in his leisure, later reversed this judgment that leisure could compensate for unsatisfying work: 'I believe that we cannot take advantage of what remains of our pre-industrial heritage to make leisure more creative, individually and socially, if work is not creative too'. (Riesman, 1964, 166) It is indeed significant that Castle has nothing to say about the content of the enlightened day-dreaming his conveyor belt operative might indulge in. (p. 8 above)

However, to argue that there appears some correlation between the quality of work and that of leisure does not entail that these are causally related: that it is the quality of the work a man does which makes him want to occupy his leisure creatively. The quality of both work and leisure might be a product of some other factor: high intelligence, for example. On this view one could still argue for the expendability of work on the assumption that leisure would be unaffected. But so far as there might be a direct relationship between work and leisure, if we could be rid of brutalising and monotonous toil might this not open the way towards ensuring that in his leisure man does not slip into the groove of passive indulgence in mechanical and mass-produced entertainment? It is clear that work and leisure are not unrelated or antithetical functions whose problems must be treated independently. Indeed, it may be that to solve the problems of dehumanising and trivial work will be to go a long way towards raising the quality of men's leisure preoccupations. In any event, there is a want of realism about those conceptions of education for leisure which assume that you can educate a man whose work is trivial and repetitive out of the pursuit of trivial, mechanical leisure activities. We conclude with Moore that 'leisure is a problem where work is a problem and probably proportionally. The "constructive" use of leisure is likely to depend in considerable measure on the constructive definition of jobs'. (1963, 38)

The cultural value of work

At this point it becomes important to explore the notion that work is itself a human good: not merely an economic imperative but a fundamental human need. We need to question the assumption that the expansion of vocational education is merely a necessary evil, an expedient form of national investment for the sake of economic survival, but having no justification in intrinsically educational terms. In our eagerness to reject technical education because it serves extrinsic ends—as an instrument of Cold

War or Common Market Policy, or as a contribution towards rectifying an adverse Balance of Payments—we forget that for the individual work can be an intrinsically satisfying experience. Undoubtedly, for most people, earning a living is an economic necessity, deriving much of its motivation, however covertly, from biological imperatives like the need for food, clothing and shelter. But to conceive the work situation as nothing more than an economic instrumentality is to ignore the fact that, in a highly industrialised community, work (like leisure) becomes increasingly an activity which confronts the individual with a large area of choice. Men certainly choose their occupations, in part, for the standard of living they afford. But as between occupations similarly remunerated it is not altogether a matter of indifference to himself whether a man becomes an architect, a solicitor, a doctor or an accountant; or whether, at a different occupational level, he becomes a joiner or plumber or baker. When our capacities and skills ensure entry into a particular occupational stratum, status and a desired standard of living are assured, and we choose between occupations with similar rewards on the basis of the satisfactions we think they will provide as activities in themselves. Taste, aptitude, temperament and disposition help to determine choice of occupation no less than of leisure activities. We choose occupations because we prefer to spend our working day in one way rather than in another; some people even make economic sacrifices to find work which is congenial. Thus, there can be in vocationalism and its related vocational education a large element of choosing an activity for the demands it makes upon our distinctive interests, knowledge and skills, and not merely as a means to an economic end. Viewed from a national viewpoint the expansion of technical education may seem dictated merely by economic expedience. But from a different standpoint it enables an increasing number of individuals to develop skill and intelligence in relation to a wider range of industrial, commercial and professional vocations. What is socially and economically expedient represents, on the other side of the coin, a widening of individual opportunity.

(i) Marx on work

Nevertheless, it is difficult to avoid having an ambivalent attitude towards work. The notion that one fulfills oneself, in part, through work will be dismissed by some as the product of an unduly sensitive Puritan conscience. However, this conclusion about the fundamental cultural role of work in life is shared by quite different intellectual traditions within Western civilisation. Perhaps the least ambiguous in its attitude to the place of work in education and in life would be the Marxist's. The 1958 Educational reforms in the U.S.S.R. were conceived as measures for *Bringing the Schools into Closer Relationship with Life.* Yet this document was not a plea (as an 'education for life' prescription would be in English education) for the promotion of education for leisure: it was a demand for the intensification of polytechnical education at all levels from primary school to the University; a direct reflection of the prescription of the *Communist Manifesto* that there should be 'combination of education with industrial production'. (p. 105)

The English Left has often been critical of the provision of technical schooling, apparently seeing such an educational development as a means of confirming the working-class boy in the role of hewer of wood and drawer of water. But Marx himself had no such reservations: 'there can be no doubt that when the working class comes into power, as inevitably it must, technical education, both theoretical and practical, will take its proper place in the working class schools'. (1963, 258)

This belief that technical education would be an essential part of schooling in a future socialist society followed from the central role ascribed to work in Marxist philosophy: 'The labour process is . . . purposive activity . . . for the fitting of natural substances to human wants; it is the general condition requisite for effecting an exchange of matter between man and nature; it is the condition perennially imposed by nature upon human life and is therefore independent of the forms of social life—or, rather it is common to all social forms'. (1962, I, 177) A contemporary Marxist epitomises this fundamental cultural role of work as follows: 'Only in work and through work do living beings have much to say to one another. Language came into being together with tools. . . . The first abstraction, the first conceptual form, was supplied by the tools themselves; pre-historic man "abstracted" from many individual hand axes the quality common to them all—that of being a hand axe: in so doing, he formed the "concept" of hand axe. He did not know he was doing it. But nevertheless he was creating a concept'. (Fischer, 1963, 23-8) For Marx himself this ability to invent tools and conceptualise the productive processes was what distinguished man from other animals: 'they themselves begin to distinguish themselves from animals as soon as they begin to *produce* their means of subsistence, a step which is determined by their physical constitution. In producing their means of subsistence men indirectly produce their actual material life'. (Marx, 1963, 69) Elsewhere, Marx distinguished the constructions of the architect from those of bees in terms of his capacity to imagine the end product in advance of its concrete manifestation. (1962, I, 170)

Hence, in the Marxist philosophy, far from being a manifestation of his brutishness, the need to work is the essence of man's humanity. Work is not merely a means of satisfying 'the necessary appetites' (the need to be fed, 'clothed' and sheltered which he shares with the brutes), but the means whereby the natural and social environment is fashioned, creatively, into a civilisation. On this view, human existence is inconceivable in any society, past or future, without the imperative to work. Marx shared the distaste of present-day writers for the sort of economic activity to which the majority of men are condemned in an industrial society based upon the minute division of labour. In such a society the 'alienation' of labour consists in the fact that 'the work is *external* to the worker, that it is not a part of his nature, that consequently he does not fulfil himself in his work but denies himself, has a feeling of misery, not of well being, does not develop freely a physical and mental energy, but is physically exhausted and mentally debased. The worker therefore feels himself at home only during his leisure, whereas at work he feels homeless. His work is not voluntary but imposed, *forced labour*. It is not the satisfaction of a need, but only a *means* for satisfying other needs. Its alien character is clearly shown by the fact that as soon as there is no physical or other compulsion it is avoided like the plague. Finally, the alienated character of work for the worker appears in the fact that it is not his work but work for someone else, that in work he does not belong to himself but to another person'. (Marx, 1963, 177-8) However, for Marx, escape from this unhappy condition was not in the further and complete alienation from work through escape into unlimited leisure. His ideal society was rather one in which a man could choose between alternative forms of congenial creative work: 'In Communist society, where nobody has one exclusive sphere of activity but each can become accomplished in any branch he wishes, production as a whole is regulated by society, thus making it possible for me to do one thing today and another tomorrow, to hunt in the morning, fish in the afternoon, rear cattle in the evening, criticise after dinner, in accordance with my inclination, without ever becoming hunter, fisherman, shepherd, or critic'. (Marx, 1963, 110-11) In the words of the *Communist Manifesto*, work should 'have *charm* for the worker' (page 87). And Marx looked forward to the time 'when labour is no longer merely a means of life but has become life's principal need'. (Marx, 1963, 163)

In the Christian West it has become a cliché to dismiss the Marxian insights as largely falsified by the facts of history, and it is not difficult to provoke a non-sympathetic response to Marxian social philosophy by the use of unexamined and emotively loaded terms like 'a materialist conception of history' or 'economic determinism'. But as Barber has recently argued, if this sort of 'nomenclature is neglected, few would deny that a man's job and its demands leave a significant imprint on his attitude'. More than this, 'only an unreflective observer would maintain that a man's economic role, his behaviour off-the-job, and the attitudes he holds bear no connection with one another'. (1967, 120) Where non-Marxists would part company with Marx's notion of the economic determinism of cultural factors, would be in their denial of an exclusive influence to the work situation. The pattern of economic activity in a society is a necessary, but not a sufficient, explanation of its culture: the economic and industrial configuration of a society needs to be called in explanation of its culture: but such an explanation does not exhaust the description of factors which determine the religious, artistic, scientific or social activities of a community. Having made this proviso (a concession which Engels, Marx's collaborator, seemed prepared to admit—cf. Fischer, page 128), there are non-Marxists who would find it impossible not to ascribe to work a crucial role in the formation of most cultural manifestations. For example, Ernst Cassirer observed that 'Man's outstanding characteristic, his distinguishing mark, is not his metaphysical or physical nature—but his work. It is this work, it is the system of human activities which defines and determines the circle of humanity'. (1967, 68) On this sort of conception of the cultural function of work, it is nonsense to dismiss vocational education as mere utilitarianism, a means towards the good life, but never an integral part of a liberal education designed to articulate and foster cultural values.

(ii) Religion and work

Marx has been described as the last of the Old Testament prophets. Tilgher points out that in Hebrew thought 'the world is not merely something that exists but something that ought to exist, not a reality already completed, a field for passive contemplation. It is an ideal to be realised by man's efforts'. As we have seen, this is almost a Marxian conclusion. Within the Judeo-Christian religious tradition, from the early pages of Genesis down to the twentieth-century re-creation of communities dedicated to the notion that work in a community is an essential constituent of communal worship (e.g. on the Island of Iona), there is a perennial interest in explaining, theologically, man's involvement in the work situation. These religious explanations display an ambivalent attitude towards the inevitability of man's work. On the one hand, we have learned that 'In the sweat of his face shall man eat bread'. Work is the curse of Adam and so far as human labour has a religious significance this relates to the fundamental fact of human sin. Tilgher quotes the Talmudic conclusion: 'If a man does not find his food like animals and birds but must earn it, this is due to sin'. Man is cursed with work as a means of expiation of human sin.

However, in contrast with this notion of work as an abasement of man before God in his search for salvation, there stands the view that work represents an opportunity of sharing in the Divine activity of creation and recreation of the universe. Indeed, on this view, work is a Divine as well as a human necessity; the concept of God the Worker is essential to the creation story. The creation itself was a labour from which God found it necessary to rest. In the Hebrew religious tradition, a day of rest is the correlate of six days of work. Others, whilst ascribing to the common man a non-creative role in the fashioning of the universe, have sought to dignify his routine and humdrum labours with a religious purpose. Weber has analysed the Lutheran conception of work as 'a task set by God'. (1930, 63) Work was to be accepted as a humble duty without the notion that man might labour to rise above his station. Nevertheless 'in the concrete calling an individual pursued he saw more and more the special command of God to fulfil these particular duties which the divine will had imposed upon him'. (pages 84-5) Yet this dutiful acceptance of the assigned task, however routine and monotonous, was of tremendous ethical importance: 'The valuation of the fulfilment of duty in worldly affairs [was] the highest form which the moral activity of the individual could take. . . . Labour in a calling appears to him [Luther] as the outward expression of brotherly love'. Tilgher concluded, 'Luther placed a crown on the sweaty forehead of labour. From his hands work came forth endowed with religious dignity'. (p. 50)

370 EN

Weber saw this stress on the ethical function of work as a novel consequence of the Reformation: but a similar conception is implicit in the Benedictine equation of work with worship: 'work, do not despair'—'to work is to pray'. It can be through the mundane procedures of daily work that one discovers and grows in one's relationship with

S.C.E R T., West Bengal
Date 10-3-87
S.C.E.R.T., West Bengal Library
3872

God, a notion epitomised in the lines of the Christian hymn: 'Raise the Stone and Thou Shalt find Me/Cleave the Wood and I am There'. The emphasis here is upon the notion of simple men discovering an ultimate purpose in life through the worshipful activity of work.

It seems that from a religious standpoint, whether as a penalty or a privilege, man cannot escape the obligation to work; not as participating in a residual, instrumental activity, but as the expression of his faith in God's purpose for himself. Professor Emmet has concluded, with reference to secular no less than religious callings that 'It may indeed turn out that the discovery and development of vocation is one of the main things that religious language is about'. (1958, Ch. IX) It is an important assumption of this essay that this special (though historically well-founded) extra-economic conception of vocation is fundamental to any consideration of education for work.

(iii) Freud on work

Both the therapeutic and intrinsic values of work were underlined by Freud, though his own analysis also displays a certain ambivalence to the work situation. He concluded, on the one hand, 'that men are not spontaneously fond of work'. (1961, vol. 21, p. 8) 'As a path to happiness, work is not highly prized by men. They do not strive after it as they do after other possibilities of satisfaction. The great majority of people only work under the stress of necessity, and this natural human aversion to work raises most difficult social problems'. (page 80) In particular, an element of coercion is required to ensure that most men engage in 'the work of civilisation'. Yet work is invaluable for the maintenance of mental health: 'The possibility it offers of displacing a large amount of libidinal components, whether narcissistic, aggressive or even erotic, on to the professional work and on to the human relations connected with it lends it a value by no means second to what it enjoys as something indispensable to the preservation and justification of existence in society'. (page 80) Freud explained the human failure to become voluntarily committed to work activity—which would not only have value as personal therapy, but also in the transformation of civilisation—by reference to the mass of men's 'hostility to civilisation'. However (even supposing that Freud was correct in his supposition about the existence of widespread aversion to work) perhaps the masses are 'alienated' from work only in a particular kind of civilisation supported by the sort of de-humanising work situation analysed by Marx and characterised by Durkheim as the 'anomic division of labour'.

Perhaps with different sorts of work opportunities men might increasingly come to share Freud's insight into the value of work. But perhaps not: for Freud also displayed a pessimism about the limited distribution of human intelligence and talent which is reflected in the contemporary conventional wisdom about the limits of human educability. Despite this pessimism, the focal role of work in the development and sustaining of human society is clear to Freud. Work relationships are the foundation of social relationships: 'after primal man had discovered that it lay in his own hands, literally, to improve his lot on earth by working, it cannot have been a matter of indifference to him whether another man worked with or against him. The other man acquired the value for him of a fellow worker, with whom it was useful to live together'. (p. 99)

(iv) Work and the liberal-democratic ideology

Since the Second World War, and following the widespread demoralisation in Europe and America consequent upon the mass unemployment of the twenties and thirties, it has become an article of liberal-democratic ideology to maintain full employment. J. M. Keynes's *The General Theory of Employment, Interest and Money* had supplied governments with an explanation of the way to prevent national economies from descending into deep depression. In Britain, Lord Beveridge produced his report on *Full Employment in a Free Society*. As some of the case histories in that report remind us, having no work is a demoralising experience and not only because the unemployed resent their dole as a form of charity. Beveridge himself remarked: 'idleness is not the same as want, but a separate evil, which men do not escape by having an income. They must also have the chance of rendering useful service and of feeling that they are doing so'. (p. 20) This is to say that unemployment causes two problems: the problem of poverty which you can mitigate by giving a man the dole; and the problem of frustration and sense of social rejection, related to the maintenance of social responsibility and of human purpose, which you can only solve by finding him a job. It is this sort of conviction that underpins the UNESCO Declaration of Human Rights in its conclusion that 'Everyone has the right to work'. Blessed with two post-war decades of full employment and guilty about our affluence, it is easy to forget that the Beveridge report is barely twenty years old. That the educationists who are members of a generation which came to maturity in a decade of mass unemployment should ignore the cultural degradation which is a consequence of having no work to do is remarkable. In fact, the mounting unemployment which has become a feature of the British economy in the late sixties may underline once more the human as well as the economic desirability of full employment.

Conclusion

Evidently, Western thinkers from different realms of intellectual activity, and accepting widely different value assumptions, meet on common ground in emphasising the cultural values of work and the need for work as an instrument of self-realisation. Together, they underline several points about the human importance of work.

First, the essence of man's humanity is his capacity, through work, to mould his environment and determine the circumstances under which he lives. He participates in the creation of his own civilisation. Secondly, work is fundamental to social life and obligation. From a secular point of view it binds men together in a common interest: in religious terms, they share with God the task of recreating and sustaining the universe. Work is often the only important source of extra-familial social relationships. Because of the economic imperative which sends men to work, this is the only place where one is forced to associate and co-operate with other people. Hence, the shy or the gauche who do not easily socialise in club, pub or church may find strong social relationships out of the compulsion to communicate at work. Anthropologists, as well as philosophers, have noted this fundamental socialising function of work as strengthening the ties between individuals in societies at different stages of development. (cf. Firth) Thirdly, work is the source of most human culture: language, art and scientific endeavour stem from man's attempts to understand, control and refashion his environment. It is interesting, for example, that the creation of aesthetic values is categorised 'work'—a *work* of art.

Thus, work is a fundamental human need. The paradigm of the good life is not that of the gentleman of leisure: it is, rather, the life which derives from intelligent, skilful and responsible involvement in the world of work. It is self-evident (and not merely from the economic fact that we must earn in order to live) that earning a living is a central factor in living. As well as the intrinsic satisfactions it can afford, our work frequently determines the pattern of our leisure. It may cripple our ability to use our spare time creatively; but it may also be a fertile source of personal and social relationships and the mainspring of our activity as citizens. It may be an effective outlet for creative energy; and to take the earning out of living would often be to impoverish life itself. To change one's work is often to alter one's whole pattern of life. A man's work helps to determine his style of life: not only his standard of living and his status within the community, but also the nature of his family life and his social obligations, as well as his leisure. Illustrating the ways in which the patterns, routines and disciplines of work help to establish different styles of life through the rhythms they impose on family life, recreational activity and social relationships, Donald Super concludes: 'Occupation is not merely a means of earning a *livelihood*, but also a *way of life*'. (1957, 35)

The opprobrium with which we contemplate the work situation is a consequence of our generalising from the twin paradigms of the industrial machine slave and the 'rat race' of the affluent society. The first of these is likely to disappear through the dynamic of industrial change itself. The second, as we shall presently argue, is a function of the ethical context within which we live as workers and as citizens and is, therefore, essentially a matter of the moral education we provide in an industrial society. The point of work, as Marx argued, is to shape and re-shape the environment in the light of man's understanding of it and his conception of what constitutes the good life. Man's evaluations of what is good may sometimes seem a cause for despair. But to argue that work is only ever a necessary evil is to devalue the human activities of discovery and re-creation. To argue that it is no longer even necessary is to assume that Utopia is already an achieved fact. It is also to make a shallow assumption about the nature of Utopia. For there is something morally enervating about a view of the human condition which sees the highest expression of human dignity in perpetual play.

Thus, above all, to believe that education is for living ought to be to argue that education is for earning a living with all that this implies in cultural no less than economic terms. Those commonplace educational aims—education of the whole man, education for self-realisation, education to develop a person's full potential—cannot be unpacked and particularised in a way which excludes man the worker. If his work is crucial to a man's style of life, educationists cannot be indifferent to vocational objectives. Preparation for the world of work must be a fundamental educational aim.

3

Employment Opportunities in an Automated Economy

Support for a vocational dimension to education sometimes comes from surprising sources. Although some of the most vociferous anti-vocationalists are educationists with a literary training, T. S. Eliot took it as axiomatic that education must prepare people for work and he confessed his surprise that only one of the educational texts he consulted in preparing *Notes Towards a Definition of Culture* suggested that vocational education was a proper preoccupation of the schools. Another poet, W. H. Auden, wrote in similar vein: 'The purpose of all educational institutions, public or private, is utilitarian and can never be anything else: their duty is to prepare young persons for that station in life to which it shall please society to call them. My station in life is what I can give in my passport as my occupation which passport officials will accept without incredulity or laughter'. And he continued, dismissing the myth that the liberal education of the University cannot also be vocational: 'The function of the Honours' school of English language and literature is to train future teachers of English for all levels from elementary school to university'. That is, their aim is primarily vocational.

At this point it might be conceded that the vocational and 'technical' curriculum characteristic of education for the learned professions of teaching, medicine, the church, letters or the law certainly has liberal educational values. It is therefore understandable that Eliot and Auden should claim that a necessary function of schooling is preparation for work: they, after all, are poets, and the practice of this vocation is liberal and humane. But can one be sure that the education of the prospective engineer or plumber can be a similar source of improvement and enlightenment? More important still, what about the conveyor-belt operative whose alienation from work we have already discussed? Surely to speak of vocational education in his case is to trivialise the concept and confirm the worst fears of the anti-vocationalists. Hence, there is a real problem focused by those who point to the unlikelihood of vocational education having any meaning for many of the children in our schools. We cannot avoid the question of whether there is something inherent in the future occupations of most school leavers which prevents the appropriate vocational training from being the source of the kind of liberal education associated with preparation for the learned professions. The assumption that there is no cultural value in the work situation is perhaps understandable, when it appears only to offer an intensification of the conditions of employment which we have come to associate with industrialism. Perhaps work was once capable of being creative, an avenue towards self-fulfilment; but if one substitutes contemporary reality for nostalgic dreams of a mediaeval craft society, this seems a thing of the past. Yet the argument which follows derives from the assumption that in an automated society it will be possible for an increasing number of people to find this sort of satisfaction in their work.

Those in the learned professions who concede that whilst their own vocational education and their calling may be liberal, this cannot be true of most of their fellow men, are missing the point that an automated economy requires more and more people to be like them. And some of those who write most confidently about the problem of automation and education, either misconceive the nature of automation (especially in terms of its likely effect upon the demand for labour) or, if they understand its technical consequences, they often misread its economic, social and, hence, its educational implications. The crux of the matter is that automation makes it possible and desirable for increasing numbers of people to function in professional or quasi-professional terms in jobs which require the exercise of judgment, intelligence and skill. In an automated economy the problem is not that of who is going to do the routine, unskilled jobs but, rather, where we are to find the people to do the increasingly skilled work which this sort of technical innovation creates. Patterns of employment are likely to emerge which will rid us of the brutalising toil which has cursed man from the beginning of time. The gloomy prognostications about future employment opportunities as automation increases derive ultimately from a failure to understand the character and logic of this sort of industrial innovation.

Automation defined

Much of the pessimism about the economic, social and educational consequences of automation derives from confusing automation with the large scale mechanisation which has characterised the industrial development of the past two hundred years. For whilst automation requires an intensification of the trend towards substitution of machines for men, this happens to an extent that the implications for human employment become different in kind rather than degree. Thus, automation may be defined by contrast with mechanisation.

Though neither term exactly categorises the different phases of industrial innovation, *automation* can be contrasted with the intensive *mechanisation* of industry which characterised the first two centuries of industrialisation. During this period, mechanisation of industry came to involve the radical division of labour. Production, analysed minutely into the simplest processes, involves the worker in only one simple operation repeated incessantly throughout his working day. The productive process is governed by the conveyor belt and we seem to approach the nightmare epitomised in Chaplin's *Modern Times* and Huxley's *Brave New World*. Workers become subservient to the conveyor belt and are involved only in the minutest fraction of the total processes required to complete an object of production. Hence, what is sometimes confused with automation is the conveyor-belt situation involving extreme division of labour, with the worker employed *directly* in production, but in a subservient role, a slave to the machine. Automation is not this. Through computer and electronic feed-back techniques and the use of transfer machines, it is possible to have conveyor-belt production serviced only by machines; machines which are themselves controlled electronically and capable not only of absorbing and acting upon information, but which are also self-correcting in the light of fed-back information. In this way it is possible to produce quite complex articles untouched by hand : 'In the ideal case the machine completely controls its own actions; it carries through a manufacturing process from beginning to end without any direct help from human beings; and the human worker is required only to see that the machine is kept in good running order'. (Lilley, 1957, 14) In the limited space available here, it is not possible to describe the ways in which automated production can be organised so that quite sophisticated products, whose manufacture requires a number of distinct and different engineering tasks, can be processed without direct human handling in the period between insertion of the raw material into the production line and the completion of the finished product at the end. An excellent detailed description (easily comprehensible to the general reader) of the use of transfer machines in automating the production of car components (cylinder blocks, crankshafts, pistons) can be found in Lilley (see also Pollock, Bagrit and Diebold for accounts of automation aimed at the general reader). A more difficult technical account of the science and mathematics of cybernation is offered by Rose.

The distinction between mechanisation and automation may be summarised thus: mechanisation creates an army of unskilled machine minders and operatives whilst, under automation, not only does the machine mind itself, but the battery of machines involved in any production process are cybernetically related, so that labour is not even involved in conveying materials from one self-activating machine to another, nor in aligning materials within the machine: 'machines now exist which can both absorb instructions and control other machines in accordance with those instructions, directing their energies and correcting their mistakes'. (A.S.S.E.T., 1956) It is not merely a science fiction to conceive a whole factory as itself 'a machine with integrated parts'. Thus, whatever mechanisation and automation have in common (e.g. in facilitating the mass-production of goods and intensifying human affluence) they appear to have precisely the opposite effect upon the demand for productive labour. Mechanisation creates a multitude of unskilled and semi-skilled jobs. Automation makes the unskilled redundant. Nor is this only true of the unskilled: the automation of office work may displace intelligent, educated and responsible clerical staff. (cf. Lilley, pp. 67-79)

The economics of automation

We have already noticed different reactions to this situation. The optimistic response assumes that automation ushers in a golden age of leisure, a conclusion open to a number of objections, some of which we have already noted. But its fundamental weakness is that it can bear little relationship to the facts of life in a capitalist economy ('capitalist' is used here neutrally and descriptively, not pejoratively). Quite simply, in a free-enterprise, capitalist economy, labour-saving devices are introduced to reduce labour costs, not benevolently to create leisure for workers. (cf. Pollock; Lilley) Hence, 'leisure' is merely a euphemism for 'unemployment' unless alternative work outlets are created. The golden age of leisure may well turn out to be a fool's paradise. Those educationists who celebrate replacement of the work situation by almost unlimited leisure never face up to this problem of how goods produced in automated factories are to be distributed in the absence of earned income. Perhaps they must be understood to be subscribing, tacitly, to the idea of a communist non-market economy.

It is the fact that opportunities to earn income seem to be diminished under automation which sometimes prompts the alternative pessimistic conclusion that the automation of industry is likely to herald an age of mass unemployment, making the great depression of the thirties appear benevolent by comparison. The pessimist draws little comfort from the fact that technological innovation has usually created a demand for employment in excess of the numbers made redundant. For the imagination boggles at the thought of finding alternative employment when we have processes which replace almost the whole of the existing labour force engaged in direct productive processes. Although few fully automated factories as yet exist, we have examples of automated processes which displace more than 90 per cent of workers engaged on direct productive work. (cf. Lilley; Pollock)

What solutions seem possible in this situation? Mass unemployment even on the scale experienced between the wars is quite unacceptable. Must we then spread the available work as thinly as possible? Obviously, new productive techniques should accelerate the trend of the past century towards a shorter working day and week. But beyond a certain point, spreading the available work widely is no solution to the problem of automation. If the employer's motivation to automate is essentially the expectation of reducing costs, to turn a factory over to machines whilst retaining a large proportion of the labour force on significantly reduced hours would not achieve this. Lilley quotes the managing director of Standard Motors as saying: 'We are not installing £4 millions worth of equipment in order to employ the same number of men. We can't carry people for fun'. (p. 129) But if this creates a problem for redundant workers, its long-run implications are also a threat to management. For here one is at the centre of a dilemma of capitalism. If the products of automated factories are to be sold, it is essential that workers displaced by cost-reducing automated processes should be able to earn incomes somewhere else in the economy. To the Ford executive who is supposed to have chaffed Walter Reuther, Secretary of the American Automobile Workers Union, that machines do not pay union dues, Reuther replied, 'nor do they buy Ford cars'. This focuses the problem that in a capitalist economy we have no way of bringing goods on to the market and of getting them into the possession of consumers unless they are in receipt of an income. And the more that the production of consumer goods is automated, the more it becomes imperative to find alternative modes of employment, thus maintaining the purchasing power of the consumer. There would be no problem in a communist economy where goods were distributed in accordance with non-market criteria. But in a market economy, we have to earn incomes to keep industry in business. Is there any alternative to mass unemployment or uneconomic work-sharing which helps us off the horns of this dilemma?

In fact, adjustment to the threat of widespread human obsolescence is likely to be found in nothing more than an acceleration of the trend throughout the history of civilisation towards the replacement of productive by 'non-productive' workers: non-productive, that is, in the sense of not being directly involved in the manufacture of goods for consumption or capital investment. In earliest times, presumably the whole working population was involved directly in satisfying basic, material human needs. With specialisation of function, some individuals were withdrawn from direct productive work. Some provided services to facilitate the production and exchange of goods: others became involved professionally in government (including the military), with religion and the arts. Successive improvements in productive techniques witnessed further shifts to professional and service occupations until, at the 1961 Census, with only a minimum of automation, some 60 per cent of British workers were engaged in non-productive work. However, it does seem that the pace and scale of redundancy associated with automation introduces a new factor into the situation. What sort of alternative employment outlets can we envisage in the future?

Employment opportunities in an automated economy

(i) Industry and its ancillary occupations

Work opportunities are likely to expand in two main areas: through the logic of industrial development itself and in the field of non-industrial 'service' occupations. Three examples of the first of these may be cited. First, in automated industries themselves, there is increased demand for skilled work at all levels concerned with invention, research, design, production planning and the programming and maintenance of plant. The 'operatives' in automated factories are highly skilled technologists and technicians concerned with research, maintenance, production planning and general management. (cf. Lilley: Pollock) The scale of these preparatory and ancillary tasks was illustrated by Galbraith (1967, 11-12). The Ford Motor Company was formed in June 1903 on a mere $100,000 of Issued Capital Stock with a labour force of about 125. The first car was on the market only some three months later in October, 1903. On the other hand, the Ford Mustang, marketed in the spring of 1964, had been 3½ years in preparation. Engineering and styling costs were over $9,000,000 and tooling up cost $50,000,000. Company assets were now some $6 billion and, clearly, a large proportion of the labour force of 317,000 must be involved in pre-production labour functions. In the modern aircraft industry, gestation periods of up to ten years are required before the first prototype takes the air, a further example of how prolific modern industry is in its consumption of 'pre-production' labour. Facts of this sort underline the point that it is the *incidence* of human labour within the productive process which has shifted: it has not been replaced: 'we are moving from old methods where the major part of human effort is put in at the time of production to new methods where the main human effort is put into creating the productive facilities *before* they become productive'. (The Foundation on Automation and Employment Ltd., 1965)

A second area of employment expansion which inheres in technological innovation is in the ancillary industries created or expanded to service production. Mr. Harry Nicholas, Assistant General Secretary of the Transport and General Workers Union, has illustrated the way in which automation explodes ancillary industries, by reference to the automation of the oil processing industry. When oil production is expanded by automated techniques there is a greatly intensified demand for oil tankers with the consequent increase in demand for ship-building (and its own ancillary industries), merchant seamen, port operatives, insurance facilities, customs and excise personnel. The products of the industry have to be distributed and this, in turn, intensifies the demand for inland transport and sales services. In passing, it is interesting that Mr. Nicholas's non-pessimistic view of automation is characteristic of many intelligent and far-sighted approaches to automation which official trade-union publications on the subject display. There are few traces of neo-Luddism in considered union evaluations of the future prospects for employment.

Thirdly, there is the increased demand for labour in the commercial and professional occupations which service industry and its social concomitants. The future is likely to witness an extension of service and distributive trades and salesmanship. The professions are likely to be in increased demand. For example, increased mobility of labour makes for greatly increased turnover in housing as the frequent appearance of estate-agents' boards outside houses on middle-class housing estates indicates. And apart from anyone else, this has implications for the legal profession. Similarly, the growth in ownership and turnover in houses and cars occasions considerable expansion of insurance services.

(ii) Non-industrial services and professions

The second major area where employment could expand dramatically lies outside industry and its related professions. There is a considerable shortage of workers in the welfare services, varying from those concerned with health (e.g. the nursing and medical professions) and the problems of the very young and the very old, to those concerning the preservation of law and order and the care of the delinquent and the criminal. In the field of the arts, entertainment and physical recreation, facilities are also grossly inadequate to cater for such leisure as we already have. Any extension of leisure (and our scepticism about over-optimistic claims in this direction should not be read as an assumption that leisure will not increase at all) should intensify the demand for workers in the recreation industries and professions. It is sometimes argued that rather than spreading increased leisure widely, we should derive greater social benefit from squeezing the working life at both ends, having earlier retirement and longer initial full-time education. The first of these would require considerable revision of our attitudes towards the aged (and, presumably, the middle-aged) and to our conception of a standard of life in retirement which not merely sustains life but also makes it possible to enjoy it. This might even produce a distinctive 'pensioners' market' to parallel the so-called 'teenage market'. A more satisfactory solution might be to facilitate withdrawal from employment at periods throughout life to achieve cultural re-creation (as well as renovation of technical skill) in terms of interests which emerge with experience of life but which, in the present order of things, most of us have insufficient time or money to develop. The model of the Danish Folk High School, with a long tradition of offering cultural education to adults withdrawn from economic activity for a period of several months, is suggestive of the way in which educational use might be made of increased periods of leisure. 'Education as a lifelong process' might then be raised from the realm of cliché to that of reality.

The alternative prescription that the working life should be shortened relative to extended initial education is less controversial and is, indeed, an increasingly realised fact. But from whatever source, the intensified demand for education and its improvement at all levels opens up considerable employment opportunities. There is an almost indefinite expansion of educational services implicit in the policies and programmes presented to the annual conferences of teachers' organisations themselves, as well as in recent reports of the Central Advisory Council for Education: the Crowther, Newsom, Robbins, and Plowden reports. Apart from the expansion of the teaching profession entailed by the development of vocational education, the raising of the school-leaving age, the provision of nursery schooling, the improvement of staffing ratios and so on, there are implications for ancillary services like publishing and the provision and maintenance of educational equipment. The creation and renewal of social capital of all kinds—schools, houses, libraries, hospitals, roads, etc—is likely to occupy human societies for many years to come. The sort of urban renewal implicit in the Buchanan Report, for example, represents a field in which a considerable labour force might be employed.

Finally, though it is located in the commercial rather than the public sector of the economy, with greater affluence, employment opportunities might be increased through the demand for quality consumer goods and services where the machine cannot replace the man, because the nature of the service or product, and the demand for it, is a peculiar product of the tastes and talents of consumer and supplier respectively. Apart from some products where standardisation is acceptable and makes for cheapness, uniformity of product is a thing from which a better educated community might be weaned. Many consumer goods are closely related to personal taste. Furniture and clothing, for example, are things which, in a near subsistence economy, are better standardised and cheap as a necessary condition of rapidly raising the standard of life. But in an affluent society these goods become themselves an expression of individuality. Hence, maintenance of employment opportunities depends, in part, upon our setting the machine ever more difficult problems in terms of satisfying the personal requirements of consumers. The machine will solve many of these problems, but only by enlisting the aid of more highly skilled technicians to programme permutations in production processes of an ever growing complexity (cf. Lilley). Where there is affluence and a demand for luxury goods, mass-production techniques are either inappropriate or they require human skill to plan for that departure from the stereotype which individual taste requires. The luxury commodity as an expression of personal taste, derives its value from being scarce, if not unique. The working potter producing for individual taste is an increasing industrial phenomenon and in the smarter stores of large European towns expensive articles of pottery can be found which carry the guarantee—'unique'.

When considering alternative employment outlets consequent upon automation in either of the major areas outlined, it is also important to recognise that pessimistic conclusions about future employment prospects draw much of their force from our propensity to remain, intellectually, within the limits of what we have already experienced. Automation appears a threat to livelihood because, from a failure of imagination, we are unable to conceive the human race in situations where all sorts of new skills, arts and pastimes develop. We worry about human obsolescence because we are able only to focus, conservatively, upon the sort of jobs which our culture requires to be done today or those which we would like attempted if we had sufficient economic resources. But one modest lesson that we might draw from history is that the passage of time throws up new dimensions of human interest and achievement which define novel intellectual, artistic, political and technological roles quite unimaginable a century earlier. Only an arrogant parochialism would claim that the twentieth century has witnessed the limit of man's innovatory powers. By definition, such unimaginable innovations of the future cannot be discussed here. But there is a 'twilight' zone of emergent roles and functions in many spheres of human activity which scientific development and computerisation encourages. The field of medicine offers prominent examples of this as does the area of scholarly research. Research workers begin to imagine what they might be able to do (even in areas like history, literary and biblical criticism) if source material could be scrutinised with the thoroughness which cybernetics makes possible, but which would be quite beyond the unaided perceptual capacities of the human mind—even the collective minds of teams of research assistants. And this access to new forms of information and patterns of relationship between areas of human knowledge could create quite novel theoretical and practical interests to engage the curiosity, enjoyment and labour of men.

Conclusion

Under automation and the redeployment of labour which it necessitates we ought to be celebrating, not so much the prospect of unlimited leisure, but the possibility of the humanisation of work. Delivery from the curse of Adam is conceivable, not on the assumption that all work is an evil to be rid of, but because much work involves human degradation and it is from this that we need deliverance. The redeployment of the working population implicit in automation has obvious implications in terms of education for earning a living; not at the expense of education for leisure or 'living' (whatever this may mean when abstracted from work and its related cultural activities) but as an integral part of any living which engages the whole of man's personality throughout his waking hours and which refuses to envisage a residue—work—from which one escapes into leisure. Thus, the arguments for vocational education are not merely economic, relevant as those are: there are strong moral arguments for an education which equips all men to find in work a creative personal experience.

4

Automation and the Limits of Human Educability

The expansion of work opportunities which can be a consequence of the automation of industry will certainly require from workers much greater knowledge, intelligence and skill: the alternative work outlets which have just been outlined call, in almost every case, upon wider and deeper human resources. For many, this (and the educational prescriptions which follow) will render my analysis unrealistic. It appears to ignore the fact that the distribution of human intelligence and ability of high quality is limited. However desirable the changed occupational structure which automation makes possible might be, a fatal flaw in our argument would appear to be that it flies in the face of what is known about the limits of human educability. The received view is of a mass populace tied inevitably to an inferior culture, with only a small minority capable of the insight and discrimination required by worthwhile leisure interests or intellectually demanding work. And this is thought to be inevitable. The poor cultural standards of the majority are believed to follow not from any want of educational opportunity or stimulus from the environment, but to be a reflection of limited innate ability: 'you can't make silk purses out of sows' ears'. On this view most of our fellow men are ineducable beyond a very trivial level and the routine, undemanding work by which most people live is an index of their own inherent limitations. Quite simply, there seems insufficient latent ability within the population to upgrade industrial and professional skill along the lines required by my analysis: we need silk purses and all we have are sow's ears.

Nevertheless, it is arguable that the myth of the sow's ears is as great a stumbling-block to social and educational progress as is the myth of the dustbins (see Chapter I above); that the cause-effect relationship is the reverse of that assumed by our conventional educational wisdom; that the admittedly low culture preferred by the majority is a product of low educational standards in the past and of an industrial society which has hitherto made little demand upon most men's latent capacities. That is, it is the work which most men do which makes them stupid.

The Newsom Commissioners began their review of the educational needs of the average and below average child from the conviction that the supply of talent available to a society is a function of the demands made upon individuals by its level of technological development. They quoted Macauley's belief that genius is subject to the same laws of supply and demand as that of any other commodity:

> Genius is subject to the same laws which regulate the production of cotton and molasses. The supply adjusts itself to the demand. The quantity may be diminished by restrictions and multiplied by bounties. (p. 6)

The commissioners continued:

> A more subtle investigation into what constitutes the 'restrictions' and the 'bounties' in our society is of far

more recent growth. The results of such investigations increasingly indicate that the kind of intelligence which is measured by the tests so far applied is largely an acquired characteristic. This is not to deny the existence of a basic genetic endowment: but whereas that endowment, so far, has proved impossible to isolate, other factors can be identified. Particularly significant among them are the influences of social and physical environment; and, since these are susceptible to modification, they may well prove educationally more important.

The occupational structure which emerged from the first Industrial Revolution consisted of a 'restriction' upon the mental development of the mass of men. But, as we have argued, the changed economic pattern in an automated society can function as a 'bounty' to call forth and develop the native genius of our fellow men. In his Foreword to the Newsom Report, Sir Edward Boyle was capturing and epitomising the spirit of its argument when he wrote (somewhat surprisingly from one on the political Right) of children having proper opportunity for *'acquiring* intelligence'.

In taking this view that the culture in which the individual is nurtured may have either a liberating or an inhibiting effect upon the appetite for learning and the capacity to acquire skill, Newsom was in tune with a contemporary tendency to accept the evidence of sociological enquiries into the effect of environment upon educability. Butcher, a psychologist, has noted that in the face of sociological evidence of this sort, there has been 'a reaction against the too static and narrow idea of differences in intelligence that seemed to be the orthodox view of educational psychologists a few years ago. In its extreme form this view implied that a child is born with a fixed or pre-determined level of intelligence, that this innate intelligence level can, at least in principle, be assessed by standard tests (and) that the resulting intelligence quotient will hardly vary at all from infancy to old age'. (p. 20) Following his own review of the pertinent sociological research, Butcher concludes: 'Enough evidence has been summarised . . . to show rather conclusively that, whatever proportion of variance in intelligence we ascribe to heredity or genetic endowment, for practical purposes we must act and plan as though environmental influences were crucial'. (p. 271) Wiseman, after a similar review of research evidence on the relationship between education and environment (1964, Ch. 4), has recently concluded that whilst 'Intelligence is largely determined genetically . . . nevertheless, intelligence is a developmental concept, and the level of stimulation in the environment has a considerable effect on its development'. (1968, p. 264)

If we liberate our thought from the assumption that capacity for intelligent behaviour is entirely a function of genetic endowment, we must allow for the possibility that much of the backwardness encountered in schools is environmentally fostered. Arguably, the indifference to learning displayed by many children follows from a realisation (in part, bred of the attitudes they encounter in familiar adults, often teachers as well as relatives) that they are destined to enter an industrial economy which requires less of them in terms of intelligence and competence than the modest skills which even the below average are able to acquire in schools. In the conversation of teachers one sometimes encounters a justification of the pursuit of limited educational objectives on the grounds of 'He'll only be a lorry driver, so what's the use . . .?' Their point of reference is the limited demands made by a particular job of work, not the possibility of the child's learning to transcend the limitations of his social environment. And given the debilitating effect of a great deal of work during the history of our industrial society, this seems a realistic recognition of the difficulty encountered in motivating the future conveyor-belt operator to acquire any but the most modest of intellectual skills. However, on the basis of his own research and that of other workers in the field, Rosenthal has argued that teachers' expectations of their pupils' behaviour 'come to serve as a self-fulfilling prophecy': there is 'compelling evidence that teachers do, in fact, hold up lower standards of achievement for children of more deprived areas'. (1968, 178) He sees evidence for a 'new expectancy that children can learn more than had been believed possible' and concludes that this 'will make it more difficult when they [teachers] encounter the educationally disadvantaged to think. "Well, after all, what can you expect?"' (p. 182)

To cite evidence of this sort is not to contend for educational or social equalitarianism. One is not arguing that all men are equally capable of the highest level of cultural and professional attainment, but rather that the majority of our fellow men are capable of much greater sensibility and skill in the conduct of life than our industrial society has hitherto required of them. It is evident that the occupations which the majority of men follow make fewer demands upon their intelligence, talent and skill than did their schooling. Even the backward in our schools achieve a degree of literacy and numeracy greater than is required by a great deal of industrial work. Much industrial activity is the graveyard of literacy and skill: it is counter-educational. It provides no stimulus to the further development of language skills and general intelligence. Even a decline in these is common. Thus, if the remaining work in an automated economy makes greater demands upon people this, for many, would only serve to maintain their post-school achievements at a level consonant with the modest educational standards they attain in school. And the increasing obsolescence of rote industrial skills and the need for highly skilled manpower consequent upon automation are likely to diminish that pool (or, rather, that vast ocean) of our fellow men whose environment has hitherto made few demands upon their personal resources.

A better understanding within the community of the radical change in attitudes and modes of vocational experience required by an automated society could supply the young with a powerful motivation towards the acquisition of a liberal vocational culture of the kind discussed below. Educationists ought to welcome automation as a means of liberating men from the brutalising and monotonous toil which demoralises not only individuals, but entire classes in our society; and which confronts teachers with many of the educational problems they encounter in large industrial communities where most teachers spend their working lives. For it is arguable that our more chronic educational ills are not ultimately to be healed by a direct attack upon the symptoms within the schools. Compensatory education may be abortive which merely attacks the problem in schools whilst the environing conditions which are the real disease remain neglected. *The Guardian*, reviewing the Newsom Report, suggested that it ought to have been sent to the Minister of Health before it went to the Minister of Education. The conclusions of this chapter suggest that it ought also to have been mandatory reading for the Minister of Labour. The transformation of our culture in vocational terms may still be the necessary, if long term, solution to the depressed educational achievements of *Half Our Future*.

5

The Vocabulary of Vocational Education

Those educationists who deplore the preoccupation with vocational objectives in education are rarely questioning the desirability of making an increasing supply of well trained manpower available to industry and commerce. Their standpoint is more likely to be that technical training is not a proper concern of the educational system and certainly not of schools. Ideally, industry's manpower needs would be satisfied by training programmes within industry itself or in specialised training centres, probably under the aegis of the Minister of Labour, not of the Department of Education and Science. On this view, technical training does not constitute an adequate *educational* experience. This is not merely an academic or verbal point. It is obviously crucial to discussions of how far vocational training ought to be located in schools and colleges, how far within industry itself. Thus it is important to look more carefully at the vocabulary of education in order to discover how far different meanings can be attached to words which are sometimes confused or dichotomised in educational discussion: words like 'technical', 'training', 'vocational', 'general' and 'liberal'. It might be helpful if words of this sort could be distinguished as picking out various different kinds of learning activity which contribute towards the acquisition of the complex of skills and attitudes which are required in the work situation.

In occupational terms, three broad areas or levels of competence may be distinguished. First, there is competence or dexterity in performing quite specific occupational tasks: the sorts of activities which, to the outside observer, constitute the overt manifestation of the worker actually doing his job. In different occupations these activities may be quite limited (as with the conveyor-belt operative) or wide-ranging in their scope (as with the motor mechanic). As well as manual, they may be intellectual skills: for example, the scholar's, businessman's, executive's or teacher's skills in using books and documents, making notes, interpreting minutes or reports; their skill in clearing their 'in-trays', the efficiency with which they employ ancillary workers and discipline those for whom they are responsible; their facility in public speaking, discussion or negotiation. These essentially non-manual operations may be regarded as the counterpart of technical skills employed by workers at all levels in the various engineering industries.

Secondly, there is the skill in relating these specific performances to the wider industrial, commercial or academic contexts within which they are practised. Are these skills always most appropriate in the circumstances where they are used? How far is the worker able to adapt his skill intelligently to novel situations? Is his understanding and mastery of his skills such that they are readily transferable to contexts and tasks which differ from those situations in which the skills were initially learned? Does the worker always stick literally by the rules or does he judge particular situations on their merits: are his priorities dictated by rules of thumb or is he able to discriminate between the demands of different tasks in terms of their importance, urgency and the consequences of his own scale of priorities for other workers? It is possible for people to perform quite skilfully at the first level indicated above without having the capacity to adjust intelligently to different contexts. For example, the good professional sportsman is the one who is able to 'read the game', not merely the one who can perform its motor skills impeccably in a coaching situation. A footballer may have an excellent command of the skills of heading, dribbling, shooting, passing the ball. But he is hardly performing intelligently in terms of the strategy of the game if he continues to spray pin-point passes to a colleague who is clearly out of form, or suffering the effects of injury, or closely marked by an opponent. His execution of what he intends to do may be impeccable; it is his intention which is questionable. Competent performance in a game involves more than dexterity in the use of its constituent skills: these skills must be adapted to the conditions of the pitch, the weather, the form of one's colleagues and opponents (as well as their known strengths and limitations), the pace of the game and so on. And similarly (other than in the most routine of conveyor-belt situations) the ability to employ technical skill thus discriminatingly is a requirement in any industrial or commercial situation which leaves some initiative to the worker.

Thirdly, there are the competencies and attitudes which are a product of the worker's perception of the wider political, social, moral and aesthetic dimensions of work. This wider occupational dimension is defined by factors like the codes of professional conduct imposed by professional bodies, pressures brought to bear by consumer associations, aesthetic standards required by organisations concerned with the improvement of industrial design, political activity required by trade unions or employer's associations; or, if a worker is subject to none of these regulations or pressures, the attitudes and conduct he adopts from his own sense of responsibility towards his clients or the community in which he lives. As well as referring to the exercise of technical competence at the other two levels noted above, there is a well established sense of 'vocation' which has reference to this wider cultural context to which the worker might remain insensitive or indifferent whilst getting on with his job in the more immediate sense; though, clearly, the quality of his activity on the job may be affected by his perception of this broad vocational context, or by his indifference to it.

We may now examine some of the items in the vocabulary of educationists in terms of these three broad distinctions within occupational activity.

Technical training and technical education

'Technical' is the most exclusive and restricted in application of the terms we noted above. It refers, particularly, to the first two areas of competence just outlined. And the distinction between technical training and technical education is marked by the different implications of the distinction between these areas. 'Training' sometimes carries pejorative overtones because it is a term commonly applied to teaching tricks to animals. Teacher Training Colleges were redesignated 'Colleges of Education' largely because of this unfortunate association of the word 'training' with animal-learning situations. However, no doubt it is possible for humans to learn skills in the rote fashion which characterises animal learning. Most of us probably learn to ride a bicycle in a manner which does not differ significantly from the way the bears in the circus learn to ride. Much of what passes for educational psychology would probably not have imposed for so long on the credulity of educationists had it been unable to demonstrate some strong similarities between human learning and that of rats, cats, and pigeons. If this sort of learning theory is now on the defensive in educational theory, it is not because clear similarities between animal and human learning may not exist, but because these similarities seem trivial in relation to the kind of learning which characterises an educational situation. This is to say that to be categorised 'educational', a learning experience requires to be something more than mere training.

However, training is undoubtedly one of those activities of which the educational process is compounded. In schools, we commonly provide training in the restricted sense of attempting to ensure the learner's mastery of particular techniques at the first level of skill outlined above. Usually we are not satisfied that children grasp arithmetical principles (though for most teachers, achieving this means winning considerably more than half the battle): in addition to knowing the principles underlying long division or the number bonds, for example, we think it desirable that children should acquire speed and accuracy of computation and we provide drills aimed at this sort of mastery. One sympathises with the view that the existence of computers or ready reckoners ought to mean that the repetitive rote practices of many traditional mechanical arithmetical procedures should be banished from the schools; but nevertheless, the ordinary business of living is considerably facilitated by the ability to calculate accurately and easily without constant reference to these aids to computation. Similarly, many of the tasks of industrial, commercial and academic life are the more efficiently and economically completed from being done 'unthinkingly', without our having to agonise about the appropriate procedures in every new instance of the use of a skill. To take a relevant parallel from daily life: it is usually when we occasionally think about operating the controls of our car that driving efficiency suffers; this is a difficult and highly complex skill which the good driver has learnt to perform automatically. And it is practice, in the rote sense of trying over and over again, which brings us closer to perfection in the performance of all sorts of skills. In this sense, training may have characteristics which put human learning in a category quite close to that of animal learning and, provided this is not the whole story, it is none the worse for that.

However, to pursue for the moment the example of learning to drive; for reasons of safety and minimising wear and tear on the vehicle, as well as in the interests of efficient and economic learning, learning to drive a car is usually accompanied by some theoretical explanations. As a minimum, the complementary functions of the controls (e.g. clutch, gear-lever and accelerator) have to be explained and a knowledge of what these are doing in relation to the machinery we cannot see probably facilitates learning to drive. It is certainly necessary to knowing what may be wrong with a car which is behaving strangely. There may well be skills of such a routine character that no theoretical explanation is required for learning them (indeed, only in a very minimal sense do these skills have to be learned at all). But with many skills, as with driving, theoretical explanations may invest mechanical movements with a meaning which facilitates learning: and the capacity to refer to theory or principle seems necessary in order to lift skilled performance into the second of the categories of competence we discussed above, by virtue of which performance becomes intelligent, capable of adaptation to novel situations or modification as the industrial context alters. Where training is conducted in such a way that it achieves this objective (by reference to principles, however rudimentary or unstructured) it may be said to constitute an educational experience. At this point one can meaningfully speak of technical education, though the quality of this, as an educational experience, will depend upon the range of theoretical explanations on which it is necessary to call. Where relevant principles can be drawn from a number of disciplines the quality of this educational experience is likely to be enhanced.

To summarise: technical education embraces technical training and implies the acquisition of professional, commercial and industrial skills through both theoretical and practical learning situations.

Vocational education

Our earlier review of the ideology of work concluded that human work has far-reaching cultural implications beyond the circumscribed industrial context within which men exercise their technical skills: there are social, moral, aesthetic and religious implications of work. It is true that most dictionaries instance uses of the word 'vocational' which refer, narrowly, to the job which a man does whilst at work. However, they also note another, well-established sense of 'vocational', which recognises that the worker is involved in more than the mere production of goods and services. In this sense, as we have seen, the notion of vocation has strong religious associations: one's calling or vocation is a call from God. And many who would reject the religious hypothesis would, nevertheless, see their work in a moral dimension, such that it is proper to characterise their perceptions of their job through words like 'commitment', 'concern', 'service', or as having a social as well as a purely personal significance. Hence, religious implications apart, to have a vocation is to be conscious of serving some larger social purpose and developing a commitment to this.

Since the word 'vocation' does not have as wide a currency in daily speech as some other of the ambiguous concepts which bedevil educational thought (e.g. freedom, discipline, knowledge, democracy, learning) there is no reason why we should not attempt to prescribe a technical, educational usage of 'vocational' to refer to this second, more comprehensive sense of the word. This is not to suggest that 'vocational' should refer only to the wider cultural context of the work situation: it is not necessary to oppose sharply the technical and the vocational implications of work. 'Vocational' is, rather, the more comprehensive term, so that vocational education embraces technical education but also includes more than this. As well as the learning of technical competences, vocational educational implies a growing awareness of the moral, social, economic, political and aesthetic dimensions of work. It sets out to show the learner how his skills fit into a wider cultural context.

If workers are to respond intelligently to the dynamics of industrial and economic life, it is necessary that their education should show them (as rarely before) the cultural context within which they exercise their skills. Part of vocational education must be to promote understanding of the close relationship existing between work, citizenship, personal taste and morality. In this wider sense, vocational education constitutes a genuine educational experience in that it mediates knowledge, skills and attitudes which lift the worker's perspective beyond the demands which the job itself imposes. Historically, apprenticeship involved this sort of cultural orientation through the teaching of moral and social obligation to the community of one's craft, to the customer and to the wider society beyond, as well as an initiation into the technical mysteries of the craft. And in this connexion it is interesting that the Training Board of the Engineering Industry has ruled that, in certain circumstances, firms providing courses in 'character training' might thus qualify for an addition to their training grant. (Confederation of British Industries, September, 1968)

It is often argued that conveyor-belt operatives can develop this sense of identification with the wider cultural associations of their firm, if they are shown how the limited specialised process in which they are engaged is related to the complete manufacturing process. There is some empirical evidence for this assumption. But in the long run, the vocationalisation of work would seem to require that people are involved in tasks which are capable of having meaning in themselves and of supporting the sort of reflective activity which deepens one's grasp of a situation in both its technical and wider cultural manifestations. By rendering the conveyor-belt operative obsolete, automation can open the way to work of greater subtlety and liberality in which the worker is once more able to see production as a totality, and regain the sense of serving wider cultural objectives. In relation to this sort of occupational situation, vocational education can become a source of real liberal education in freeing him from the limitations too often imposed by routine repetitive work.

This conception of 'vocational' has implications for the use of two terms common in educational theory: 'vocational training' and 'vocational guidance'. On this analysis it would seem proper to speak of 'technical training' rather than 'vocational training'. Although we have defined 'vocational' inclusively, to embrace the learning of specific techniques, in its larger connotation vocationalism implies education rather than training. Understanding the vocational complex into which technical, moral, economic, social, aesthetic and political strands are woven requires the development of perceptions which must constitute an educational experience, in the sense of transforming one's entire attitude towards men, society and things.

On the other hand, the term 'vocational guidance' retains its value but with an extended meaning. For whilst it is perhaps most commonly used with reference to the provision of information about the technical content of different jobs, it ought to be more than this. As well as intimating the range and kinds of technique which a given occupation comprehends, vocational guidance ought also to prompt consideration of the cultural opportunities and limitations inherent in particular occupations. This requires a consideration of the opportunities for leisure, social relationships, political activity and for further education which are associated with a particular job. And, most important, vocational guidance cannot ignore the moral context of a given occupation. To minimize the possibility of disillusionment with work, the intending scientist or technologist, for example, needs to consider how far particular work outlets will pose moral problems stemming from the application of science to purposes of national defence or to the production of trivial commercial goods; the intending teacher or social worker needs to know how far the realities of his chosen profession can sustain a commitment to human betterment; the recruit to the 'communications' industries needs some insight into how far he might be required to propogate information or manipulate persons in ways he might find unacceptable.

It is implicit in the attempt to distinguish technical from vocational education in terms of the limited reference of the first (i.e. to the intelligent acquiring of job techniques) and the comprehensive nature of the second (referring to the development of a cultural perspective upon work as well as the acquisition of technical competence), that the educational activities characterising the latter have clear implications for the former. To come to accept that responsibility in a job involves moral considerations with reference to the quality of the article or service one produces, must be to redouble one's efforts to acquire competence at the technical level. However, the technical-vocational distinction will still have value, for although it is difficult to conceive that a worker who accepts the moral implications of his job will not, therefore, be committed to improving his technical competence, it is conceivable that a worker might produce an excellent piece of work simply because he is interested in solving a technical problem for its own sake and not because he refers his work to some extra-technical set of principles. But there are some occupations where the distinction between technical and vocational education is difficult to draw in practice, because the sort of curriculum which would serve one of these objectives is also appropriate to the other. In particular, the more people are involved in occupations requiring face-to-face relationships with the public, the more their 'technical' education must include consideration of the moral and social content of work, and an attempt to refine sensibility in the personal relationships encountered on the job. Thus in higher technical education, the wider cultural dimension of vocational education may often be furthered by those same courses of study which are also an intrinsic part of the student's 'technical' curriculum, as when economics, psychology and sociology figure in management studies (or economics for engineers) and when students undertake courses in the history or philosophy of their specialist discipline (as in teacher education). Indeed, courses which attempt to widen the student's cultural horizons from a basis of their technical studies would seem to offer sounder motivation and achieve greater liberalisation than unrelated courses of the kind 'Poetry for Plumbers', 'Music for Metallurgists' and so on.

General education

In educational literature and discussion, it is frequently assumed that the terms vocational education and general education refer to quite different and exclusive categories of educational experience. Indeed, the most common usage of 'general education' is that which attempts to pick out precisely those learning experiences which have no vocational relevance. In this sense, general education simply refers to that part of a person's education which has no extrinsic reference to the world of work. This usage has unfortunate implications for the idea--fundamental to this essay—that work experience is crucial to the quality of living as a total experience. General education, when used in opposition to vocational education, is assumed to be concerned with the development of the whole man. Hence, when the terms are used dichotomously (general *versus* vocational education), to choose vocational education rather than general education seems to imply the illiberal proposition that we can safely sacrifice the education of the whole man to a particular limited and, implicitly, less desirable objective. For on this view, not only is vocational education concerned with part of the man: we have seen that our dominant educational ideology sees it as concerned only with the ignoble, appetitive, greedy part of his nature.

However, an alternative sense of 'general' is not that it stands opposed to the particular, but that it comprehends the particular: just as 'the whole man' may be regarded as the sum of his parts. On this comprehensive view of general education it is meaningless to dichotomize general and specific (e.g. vocational) objectives. A general education comprehends special educational objectives. The folly of opposing general and special objectives in this way is obvious if we relate this distinction to the notion of education for life, often assumed to be the aim of a general education. There are not general and special forms of living. General living, or 'life as a whole', is merely a complex of many specific activities: housekeeping, bringing up children, practising or appreciating the arts, engaging in various recreational activities, gardening, walking in the park, working for a political party or being active in one's trade union and so on indefinitely. Like Hume, who, when introspecting to discover his intimate inner self 'could only stumble on some particular perception or other', so we can only find ourselves living in the practice of some particular life activity. Of course, there is a sense in which we can argue that a man is not living *properly* if his activities are over-specialised—if he spends a disproportionate amount of his time at work, or fiddling with his car, or working for a political party, or in the pursuit of the opposite sex, so that his life becomes unbalanced and he is less engaging as a person (even less developed as a person than he might be) because of the lopsidedness of his interests. But to argue for general education to meet this contingency (i.e. to *broaden* a man's outlook) does not require that we abandon particular or specialised learning activities. It does require that we include as wide as possible a range of specific disciplines and activities within the curriculum of every child: pleas for general education are often simply a protest against excessive or premature specialisation. Hence, although in the interests of better general education, there is a contemporary fad for dissolving the curriculum into a mélange of 'integrated' studies, it remains perfectly proper to regard a general education as consisting of a complex of specialised studies which relate to the specific life activities of the human race. It would certainly be an unbalanced and over-specialised education which pursued nothing but vocational objectives. But it is not stretching words beyond acceptable common usage to think of a general education which embraces vocational amongst other specialised curricular activities. The Shorter Oxford Dictionary does, indeed, note a major usage of 'general' as 'pertaining to all or most of the parts of a whole'.

Donald Super remarks on the odd fact that psychologists concerned with concepts of personality development and maturity, have frequently seen these as a composite of emotional, intellectual, physical and social development, whilst rarely admitting the importance of vocational development as a necessary component of personal maturity. But Super himself conceives vocational development

> as one aspect of individual development. Like social development, emotional and intellectual development, it has both distinctive characteristics which make focusing on it worth while and common characteristics which reveal it as one way in which the general development of the individual manifests itself. Work, like social life and intellectual activity, is one specific medium through which the total personality can manifest itself. (p. 185)

When the phrase 'the whole man' is used in a sense which explicitly excludes his work experience, it must itself refer to the development of only a part of man: this sort of usage conveys no sense that the whole man encompasses the entire range of activities which characterise his daily life. In much educational theory, 'whole' clearly assumes some precious connotation in the sense of wholesome: some activities are wholesome, others are degrading, and vocational activities are presumed, mistakenly on our earlier analysis of the role of work in life, to fall into this latter category.

Contrary to its anti-vocational usage, our assumption here is that general education is merely a more comprehensive category than is vocational education which, in turn, comprehends the more particular technical education: general education should be regarded as comprehensive of, and not an alternative to, technical and vocational education.

Liberal education

Liberal education is often confused with general education as, for example, when the non-technical component of courses in colleges of further education are designated either 'general studies' or 'liberal studies'. However, liberal education properly denotes a category different in kind from the related terms, 'technical', 'vocational' and 'general'. Liberal education cannot be defined by reference to syllabus content or to a specific range or kind of educational activity. It refers rather to the product of any kind of educational process, in the sense that a liberal education is one which *frees* the individual from whatever constraints might hinder his development as a person.

In the past, we have been encumbered with a concept of liberal education defined as an education for 'free men'. But this conception of education for free men has never been applicable to the enfranchised industrial worker. The notion of liberal education has been largely a hangover from the past. Our ideal of the free man is tainted with nostalgia (however tacit) for a style of life in which leisure itself seemed something of a vocation. Liberal education has drawn its rationale from the concept of a non-producing class, seemingly exemplified by the Platonic guardian, Aristotle's citizen, the Renaissance courtier or the English squirearchy. The 'free man' of the paradigm liberal education was the gentleman of leisure. Aristotle defined the activities which characterise the free man as follows:

> then as to useful things—there are obviously certain essentials which the young must learn, but they do not have to learn all useful things, since we distinguish those that are proper for a free man and those that are not. The citizen must take part in only those useful occupations which do not degrade the doer. Among degrading activities and vulgar pursuits we must reckon all those which render the body or soul or intellect of free men unserviceable for the demands and activities of virtue. We therefore call degrading those occupations which have a deleterious effect on the body's condition and all work that is paid for. For these make a mind preoccupied and unable to rise above menial things . . it is proper for a free man to do something for himself or for his friends on account of its value in itself, but he that does the same action on others' account may on occasion be regarded as doing something paid for or servile.

For twentieth-century man, the interesting point here is not so much the reference to 'occupations which have a deleterious effect upon the body's condition' (usually taken to be manual occupations), but to the notion that work is also degrading if it is 'paid for'. On this view, given the economic, social and moral climates of modern societies, none can be called free. No less than the artisan, members of the learned professions fall foul of Aristotle's definition of work which degrades.

Aristotle's conception of the good and virtuous life refers to life in a society based on slavery. His *Politics* contains a justification of slavery as a social institution. And however cogent this justification may have seemed in the cultural context of his own time and place, modern man finds morally repugnant any notion of the good life which is lived at the expense of others. As Fromm puts it: 'Unless man exploits others, he has to work in order to live'. Contemporary notions of social justice find something immoral in living on unearned income which derives from the labour of other people. Not only the idle rich, but also the malingering poor who live on National Assistance incur the wrath of the vast majority who take the necessity for working for their living for granted. To modern man, an analysis of the good life in Aristotelian terms must be unacceptable because of its failure to incorporate a conception of social justice for all men. Social justice demands that we work to live and, for most of us, this means being employed by someone else and receiving a wage or a salary: the highly paid professional, as well as the artisan, obviously falls into the category of Aristotle's servile man.

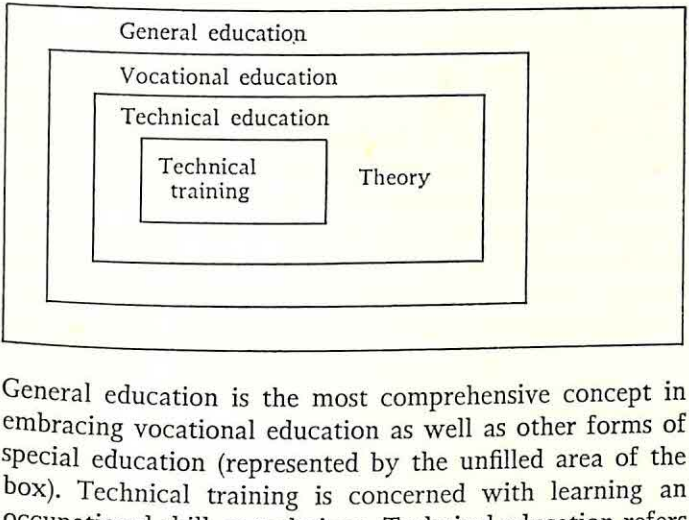
Some contemporary educational theorists attempt to divorce Aristotle's concept of the good life of leisure from its sociological context: there is an attempt to point the relevance of the Aristotelian concept of leisure for a society with quite different economic imperatives. But Aristotle's notions of slavery and leisure hang logically together and either confusion or hypocrisy results from attempting their separation. In fact, ambiguity is built into the Aristotelian conception of leisure and its historical derivatives. A close examination of this tradition of 'liberal' citizenship would reveal that this leisured, cultivated existence is only 'allowed' because the life of the Aristotelian citizen (as that of the Platonic guardian, Renaissance courtier or the English country gentleman) was essentially a function which had political and, hence, economic value. Revolution destructive of privilege tends to follow when the 'leisured' class ceases to be identified with good government or the provision of adequate employment. Thus, because leisure was contingent upon the performance of a tangible economic function, courtly education could never be simply characterised as education for leisure. Any concept of liberal education which implies merely education for leisure must be a broken reed, especially when applied within the area of popular education. It is not even a valuable concept when applied as it so often is to the education provided during most of the eight centuries of its existence by the European University. The concept of a liberal university, committed essentially to the pursuit of knowledge for its own sake and eschewing instrumental objectives, is a relatively recent conception deriving its theoretical justification largely from Newman's *The Idea of a University*. At its birth, the European University was essentially a school of professional education in Law, Medicine or Theology: even a degree in Arts was, originally, a license to teach. (cf. Rashdall; Schachner)

A more profitable notion of liberal education is to begin not with the notion of free men, but with the assumption that in some sense all men require to be made free. Liberal education then becomes an education which *frees* men from the burdens and constraints of whatever tyranny may happen to afflict them. And in modern industrial societies most of our fellow men need to be freed from the tyranny of routine, monotonous, brutalising and soul destroying toil. The greatest constraint restricting the development of the intellectual, moral and aesthetic sensibilities of most of our fellow men is imposed by the work they do. And, as we have already argued, you do not deliver a man from the tyranny of the conveyor belt by the pretence that he need not work at all or by attempting merely to 'liberalise' his leisure whilst he continues in a soul-destroying occupation. To deliver a man from the tyranny which the minute division of labour imposes, by providing him with work which calls fully on his resources of judgment, intelligence and skill, is to be on the way towards the liberation of his mind and spirit. Hence, vocational education (embracing technical education) is liberal so far as it frees men from the tyranny of the industrial conveyor belt;

that is, frees them not so much for leisure as for work which makes insistent demands upon intelligence, sensibility and skill.

Conclusion

In an educational context, 'general', 'vocational' and 'technical' should be seen as related rather than exclusive concepts. This relationship may be summarised diagramatically as an elongated chinese box:



General education is the most comprehensive concept in embracing vocational education as well as other forms of special education (represented by the unfilled area of the box). Technical training is concerned with learning an occupational skill or technique. Technical education refers to technical training conducted in such a way (practice *plus* theory) that the learner acquires the capacity to 'read' his techniques into novel or changing contexts. Vocational education, as well as the learning of techniques, requires an awareness of the wider cultural dimensions of work in general and one's own job in particular. When approached in this way vocational education constitutes a liberal experience.

6

Technical Education

The obvious conclusion to be drawn from our analysis of the emerging occupational structure in an automated economy is that we need more and better technical education. However, this need is so widely recognised and understood that its reiteration becomes redundant. The need can be taken as given and it will be more useful here to concentrate upon one of the problems posed by rapid technological change which is crucial to the question of the sort of technical education which an automated society requires.

The limitations of industrial retraining

There is a widespread assumption that because of the rapidity with which skills become obsolete in a period of radical industrial change, we shall need to create institutions for the restraining of redundant workers: 'The concept of an apprenticeship served in a man's teens which will enable him to pursue a sharply defined occupation for the rest of his working life is bound to become increasingly unrealistic. It is likely to become the rule rather than the exception that men and women will need retraining in adult life, either to bring them up to date in their own occupation, or to enable them to do a different kind of work altogether'. (Central Training Council, p. 11)

Moreover, the worker may need to submit to retraining several times during a working lifetime. A person will train initially when he leaves school; then we shall retrain him in his thirties and again, if we have not by then concluded that he is past redemption, in his fifties. At the present time, creation of retraining machinery is thought to be the most humane way of dealing with the problem of industrial redundancy, particularly if this can be coupled with generous monetary grants, so that the period of retraining does not constitute too severe an interruption of earning capacity. But merely ensuring that industrial retraining does not have adverse economic consequences for the retrainee, only takes care of part of his problem. The pyschological implications of retraining are no less important. From this point of view there is something distressing about this concept of recurrently rescuing men from the industrial scrap heap and administering 'first aid'. Is there a conception of occupational reorientation which is less damaging to a man's self respect?

Apprentice training or technical education?

One has to approach this problem of industrial mobility from both the short and the longer points of view. In the short run, we have an industrial labour force already trained and in employment. And the need for the retraining of these existing workers really stems from the type of technical training we have usually provided in the past. This is epitomised in the limitations of the apprenticeship system as traditionally practised in this country. Apprenticeship has usually consisted of the training of competence in a narrow range of manual skills peculiar to a particular industrial context. Moreover, apprenticeship has consisted of training without theory: skill has been acquired largely by imitation of the craftsman, a process which has been characterised as 'looking over Nelly'. And it is the logic of this sort of training that when such skills, acquired in this largely imitative fashion, become obsolete, there must be a fresh start. There is neither the breadth of technique nor the theoretical basis to permit *adaptation* to new and different industrial processes: 'A criticism of the existing apprenticeship system for the training of craftsmen is that both in content and length it lacks flexibility. It is not, therefore, in tune with the constantly changing needs of the technical age'. (Training Board Guide)

Hence, in the longer run we should aim at a kind of initial technical education which would give men the resource to adapt *themselves* to novel situations. The Industrial Training Council in its report on *Craft Apprenticeship* argued that 'apprenticeship should also aim to encourage in young people the habit of learning, and help to develop in them a mental flexibility which will facilitate the transference of workpeople from one job to another, including their further retraining, that will be necessary in the future'. (p. 6) It went on to argue that 'the ease with which he can absorb later training will be affected by the way in which he spent his period of initial training: and, particularly, by the further education he received at that time. It is one of the most important functions of further education to assist people to become more adaptable to change.'

More than this: what we ought to aim at is the cultivation of attitudes in the worker which will dispose him to want to *keep* up to date rather than merely the willingness to be brought up to date when redundancy threatens. The distinction between a craft and a profession is sometimes drawn in terms of a difference in training in the one, divorced largely from theory, and education for the other in competences based upon a knowledge of principle. We should attempt to develop technical education at all levels along the lines which traditionally characterise professional education; an education in the general principles of the appropriate 'technology', whether this be an industrial, commercial, service, or welfare technology. Through their technical education, in theory and practice, initiates should be encouraged to acquire fundamental skills and a wider range of skills. This was the message of the Industrial Training Act which has been embodied in proposals for the National and Higher National Certificates and Diplomas in technical and commercial occupations. For example, the certificates and diplomas in business studies are intended to replace the multiplicity of business and professional qualifications which have proliferated over the years. A broad grounding is offered in those subjects which are a common basis of commercial and professional study: economics, accountancy, law, statistics, geography and language study. Only at an advanced, final stage is there a concentration upon the specialised theoretical studies pertinent to Insurance, Banking, Transport, Exporting, Secretarial Practice and so on.

However, the most detailed plans for implementing the intentions of the Industrial Training Act have been developed by the Engineering Training Board. This Board has defined a 'Module System' of apprentice education. The training period is divided into a series of units or modules which, though related, form a series of independent training courses: 'The module system divides up knowledge and experience required to gain craft skills into periods of skill training or modules'. (Engineering Industry Training Board, 1967, 62) The earlier units consist of a common basis for trainees in all the different branches of the engineering industry, based on the assumption that there exists a good deal of common ground between the various categories of skill. The later modules are designed to meet the specific requirements of the different branches of the industry: electrical and electronic, mechanical, fabrication and instrument engineering. Thus, the basic training is an induction period in which the apprentice is introduced to workshop technology, working drawings, workshop administration and to more general industrial questions affecting, for example, problems of industrial safety and a consideration of the role of his firm and of the industry in which it operates. At this stage there is also an introduction to the care and use of bench tools. This introductory unit of training is followed by a second stage devoted to the acquisition of basic skills common to all trainees in the engineering industry. These include the skills of measurement, fitting, turning, shaping and slotting, milling, electrical wiring, joining materials, pipe work, drilling, grinding and heat treatment. In relation to these skills, both theoretical and practical work is undertaken, as well as work in 'related studies, i.e. calculations, science, sketching and the understanding of drawings and craft theory.

As well as an initiation into the general skills and theory common to the different branches of the engineering industry, this introductory period is also intended to be diagnostic and selective: 'the early training will be a valuable guide towards future classification and should be used as such . . . it is a probationary period and should be regarded as a continuation of the initial selection procedure'. (The Engineering Industry Training Board, 1966, p. 4) Thus, the preliminary training undertaken by all engineering apprentices in common, is important for the selection of those training modules which form part of the specialised courses of study and practical training pertinent to the different sectors of the industry. But the concept of modular training based upon this common element, and the specification of independent modules within the more specialised courses, has other important implications. The intention is also that the education of apprentices should be open-ended rather than strictly demarcated as in traditional apprenticeship. Trained under the module system, 'the craftsman is not restricted to one skill and can add to his qualifications by taking further modules at some later stage of his career if he so wishes'. (Engineering Industry Training Board, 1967, 62) The important word in this quotation is 'add'; we have moved away from the psychologically unfortunate 'scrap-heap', 'first-aid' implications of industrial redundancy and retraining towards a concept of technical education in which the worker may, at any time, widen his competences and extend the range of his skill and theoretical knowledge. Mr. J. A. Moon, Principal Training Officer of the Engineering Training Board, has spoken of this flexibly designed system of modular training 'as enabling new groups of *multi-skilled* craftsmen to emerge to meet future manpower needs'. (Confederation of British Industries, November, 1967) Thus there are two important implications of this modular system. First, the apprentice's initial training is open-ended: that is, the apprentice can limit or extend the competences he acquires according to his abilities, inclinations and interests. Secondly, the worker can subsequently further his own technical education by adding to his initial qualifications any modules which might later be introduced into industrial training consequent upon future technological innovation.

The principles underlying these departures from traditional industrial and commercial training are that the technical skills which people should be encouraged to acquire are fundamental principles and skills of the appropriate technology rather than mere motor skills acquired in a limited industrial context. Two desirable consequences might be expected to follow from this alternative approach to technical education, conceived in professional or quasi-professional terms. First, the worker ought to be more adaptable in face of the day to day contingencies thrown up by his work. But secondly, this capacity to transfer skill to novel situations ought to have a wider reference in permitting us to conceive of industrial mobility not as a problem of redundancy, rescue and retraining, but rather as a matter of adaptation to new contexts initiated by the worker himself. This more generalised conception of a vocational education which facilitates occupational mobility should not entail the complete scrapping of existing competences such as is implicit in the specific character of technical training through the traditional system of apprenticeship. The skills which the worker would now have would be technical principles of a generalised kind (e.g. mathematical understanding, applied scientific and technological knowledge of the properties of materials and tools and machinery, etc.) and some capacity for scholarship (i.e. literally an ability to school himself in professional terms). These generalised skills would have a greater immunity to the threat of obsolescence which is implicit in rapid technological change, than do the more restricted technical skills. With this sort of educational background and competence, the worker is much more likely to regard technical innovation as something which invites him to deploy his skills in solving new problems, rather than something to be feared as a force destructive of all he knows and understands. This is clearly important to the problem of overcoming 'Luddist' resistance to redeployment and of facilitating industrial mobility. The Carr Committee felt that demarcation disputes and restrictive practices in industry stemmed basically from the workman's fear of the disappearance of his skill: but, they argued, 'the way to dispose of it is to equip the individual to meet change by giving him a wider range of skill so that as industrial requirements alter he will be sufficiently adaptable to cope with them'. (p. 20)

The implication of this new concept of apprenticeship is that vocational education, much more than in the past, should approximate in kind and intention to that traditionally provided for the learned professions. And an example of the way in which generalised professional training facilitates mobility without any loss of face or sense of rejection is found in the tradition of teacher training itself. It is common to find teachers working in contexts very different from those for which, ostensibly, they were trained. Not infrequently they cross subject divisions, sometimes making the transition from arts to sciences and vice versa. Or they teach in different kinds of educational institutions serving different age-groups or ability levels, or offering education at different levels of generality. Trainee teachers often see their theoretical education as a waste of time and may be forgiven if, caught up in the urgency of establishing their authority in a particular (and, therefore, limited) practice situation, they see little relevance in academic subject courses or educational theory. But it is arguable that their ultimate capacity for adaptation to novel teaching situations comes from their training as scholars and their capacity to reflect (that is, to theorise) upon the differing demands upon their skills implicit in different teaching situations. It would be odd if this capacity to adapt, thoughtfully, to novel situations owed nothing to their professional theoretical studies in educational psychology, history, sociology, philosophy and child development. The assumption in English education that a teacher's education licences him to teach in any educational institution from the infant school to the sixth form or colleges of further education, must find its rationale in the conception of a generalised theoretical education pertinent to many different teaching situations.

Teachers who are teaching in very different contexts from those in which they began their careers have usually retrained themselves, or have taken the initiative in this respect. Viewed from a 'retraining' point of view, in-service courses for teachers are not unlike the additional modules which the engineering apprentice might take to extend the range of his skill.

It may seem extravagant and unrealistic to generalise from this paradigm of vocational education traditionally associated with the learned professions and to prescribe technical education in similar terms as appropriate to the whole range of skilled and semi-skilled occupations. But, however modestly, this is the sort of vocational education implicit in the educational aims cited by the official reports we have quoted above: 'education for adaptability'; 'encouragement in young people of the habit of learning'; developing 'mental flexibility'. Moreover, a feature of the occupational scene is the growth of middle-range jobs at the 'technician' and equivalent levels in the commercial and social services. The White Paper on *Better Opportunities in Technical Education* (Ministry of Education, 1961) noted the recent recognition of this category of technician (though it is by no means a new phenomenon) and the likelihood that the demand for this category will rise dramatically in the future. It noted that 'the term "technician" is applied to a wide range of responsible jobs involving a higher level of scientific and technical knowledge than that needed by a craftsman but below that needed by a technologist. Examples of work done by technicians include the design of plant and equipment under the direction of a technologist; supervising the erection and construction and maintenance of plant; testing, surveying and inspection'. (para. 3) This quasi-professional role of technician obviously demands insight and decision-making which cannot be subject to 'rule of thumb' and requires an education of the theoretical sort discussed above.

Conclusion

The new schemes for initiating apprentices into industrial skills carry clear implications for moving apprentice training into the wider area of technical education. Not only do these planned courses constitute a more acceptable educational experience in themselves; they rescue the concept of industrial retraining from the unfortunate psychological overtones implicit in retraining programmes designed for the redundant employee. As a move towards the professionalisation of industrial training they should have important consequences for the quality, not only of work, but also of the worker's wider cultural orientation.

S.C.E.R.T., West Bengal
Library
Calcutta
25/3, B. C. Road

7

Vocational Education in Schools

Our argument so far has been that vocational education is a universal human need, a means towards every man's personal fulfilment and increasingly essential if we are to confront the industrial challenge of automation. But to establish that vocational education is a human imperative, capable of being a liberal experience, is not to demonstrate that its proper place is in the schools. Indeed, educationists who wish to preserve the general educational character of schooling to the exclusion of vocational objectives, find some support from industry and commerce. The Carr committee threw its weight on this side:

> Our enquiries have shown that the overwhelming majority of industries are of the opinion that education given at school before the minimum school leaving age is reached should be general rather than vocational in character. We would endorse this view. From the standpoint of industry it is more important that a young person should have had a sound general education, than that he should have received some sort of vocational instruction which industry itself is much more qualified to give. (p. 23)

Carter, who has made a special study of the problems of transition from school to work, also has doubts about the propriety of a vocational bias in schooling. His reservations are in line with current attacks upon educational utilitarianism by those who take the view that educational activities should not be instrumental to the pursuit of ends lying outside the educational process itself. Carter writes: 'there is a danger that educational policy will be made not with reference to human potential or to any positive goals, but merely in terms of how children are to fill in their time when they grow up'. (1966, 229)

An education which is merely a preparation for a distant future undoubtedly encounters motivational problems and may, indeed, be entirely misconceived, in that the sort of future which the educationist 'plans' for children may fail completely to materialise. This is obviously true of the future in periods of rapid social and technological change. But to dichotomise sharply the life of the child and that of the adult is to ignore important facts of human experience. To the pupil in the last year of his full time education, the question of how he is to earn his living is hardly the academic problem of how he is to fill the distant years of his adult life. On the contrary, this is an imminent concern about which he has to make crucial decisions in the present. The importance of this fact that the vocational choice of the young adolescent cannot be dismissed as something concerning a remote adult future is underlined by Super:

> The choice of an occupation is one for the points of life at which a young person is called upon to state rather explicitly his concept of himself, to say definitely 'I am this or that kind of person' . . . Vocational guidance is the process of helping a person to develop and accept an integrated and adequate picture of himself and of his role in the world of work, to test this concept against reality, and to convert it into a reality, with satisfaction to himself and benefit to society. (p. 197)

The need for courses which help the adolescent to develop a realistic conception of his vocational potential was focused by the Schools Council (1968): 'Significant again are the comments of the 19-20 year-old leavers who, looking back, realised how little they had been aware while still at school what their real abilities were. The answer is, of course, to design courses which allow these pockets of talent to emerge early'. (1968, 241) And Palmer's enquiry led her to conclude that forethought about his career has beneficial consequences for the adolescent's future: 'Young workers who entered the jobs which they planned to enter tended to like their jobs'. (p. 109)

Vocational education and the interests of children

As we saw earlier, children themselves expect their schooling to assume a vocational relevance and parents are apt to identify a good education as one which has some vocational 'pay-off'. Thus it would seem that any secondary school which attempted to follow the prescription that education should develop from the needs and interests of children should, above everything else, accede to the demand for vocational education which is implicit in the young adolescent's undoubted interest in the business of earning a living. In fact, surprisingly, the secondary modern schools in the first decade of their existence, steadfastly set their faces against vocational education. Nowhere was the 'education for living, not for earning' slogan applied with such single-mindedness as in the modern school. And one is driven to the conclusion that the conception of an 'education developing out of the interests of the children' was often taken to mean, not that education should focus upon what children themselves found interesting, but that it should consist of what teachers believed to be in the best interests of children, irrespective of whether the children shared this conception of their best interests. Now, this is a perfectly valid interpretation of the notion that education should be founded upon children's interests. Many of the things in which children are spontaneously interested are ephemeral, trivial, even anti-social, ugly or immoral. Part of education's task is to refine and create interests, to wean away from trivial preoccupations and to whet an appetite for interests which endure. But a child's vocational interest hardly falls into this category of the trivial; something from which we ought to distract his attention. Towards the end of his compulsory schooling he is on the verge of making momentous, perhaps irrevocable decisions about the way in which he will occupy much of his future life. This also involves a decision about his further education; not merely the kind of further education he requires, but whether he intends to participate in further education at all. And this decision which the child is about to take will help to determine the quality of his cultural life as well as his economic status.

Carter expresses doubt about whether this alleged universal vocational interest amongst adolescents is not, in the case of some secondary modern children, merely a desire to escape from school: he calls for more research evidence on this point before we mount a programme of extended vocational courses in these schools. However, the evidence already quoted from the Schools Council suggests that the almost universal demand amongst school leavers (and the nineteen- to twenty-year-olds who have been in employment for two or three years) that the schools should do something towards furthering their vocational aspirations represents something more than a negative desire to be rid of school. 'Having a job which you like' was rated 'very important' by 97 per cent of boys and 96 per cent of girls:

these adolescents seem to want vocational education because of a positive conviction that their satisfactory adjustment to life at work is very important. It is really beside the point that this same survey found that 'three quarters of those in their third or fourth years felt that being at work would be definitely better than being at school . . . only a tenth in all thought that school was clearly preferable to work'. (p. 138) Despite this understandable desire of young adolescents to leave the kind of institutional environment in which they have been since they were five years old, it remains a fact of some significance that where secondary modern schools have provided courses having some vocational relevance, young people have been willing to stay on at school voluntarily and in increasing numbers.

But even if Carter's suspicions about children's vocational motivation were well founded, our point here is that the school *ought* to cultivate children's intelligent interest in an area of life about which many of them will have to make important decisions at a relatively tender age. It is, indeed, surprising that a researcher who discovers such a haphazard state of affairs about the way in which young people enter into work, should entertain such reservations about the need for vocational bias to schooling.

At this point, an anti-vocationalist might concede that the school has some obligation to give the child some orientation towards the world of work but would still want to maintain that there is a difference between showing him the occupational possibilities open to someone of his interests and abilities and the quite different task of attempting to teach him technical skills, or even to teach subjects like mathematics, language, science and geography with a technical bias, or to offer distinctively vocational subjects like commerce, shorthand and typewriting, technical drawing, workshop practice and so on. Keep these last out of schools altogether, it would be argued, and teach mathematics, English, geography, economics and science for their general cultural values rather than for their vocational applications.

This sort of prescription (especially when coming from those outside the schools) to keep school studies 'pure' and leave technical education to industry and further education ignores the fact that schools do not function in a social vacuum. The Plowden and Newsom reports have recently underlined what a great many teachers already knew: that in some schools there is considerable resistance to learning which children seem to acquire from the neighbourhood culture within which they live. Perhaps most children naturally resist the civilised culture which it is the school's proper function to mediate. As Peters has put it, they are barbarians outside the gates of the citadel of civilisation and have to be initiated into a civilised culture which, to the innocent, represents an alien way of life. (1964, 42-3) Some children scale the walls with considerable assistance from the adults with whom they live. Where family or neighbourhood aspirations reflect the values of the school, children usually become willing initiates, occasionally kicking over the traces, but by and large ready to accept the cultural assumptions of the school. It would be too simple to make this distinction between the willing and the resistant learner in terms of social class, but there is a broad truth in the assumption that children from homes which subscribe to middle-class values (even if they belong, economically, to the working class) pose fewer motivational problems in schools than children of the unskilled industrial working class. Nathan Isaacs once noted that 'progressive', 'activity,' 'discovery' methods which assume that children have a natural propensity towards disinterested, intellectual exploration of the mysteries of the universe are unlikely to work successfully in educational contexts supplied by the industrial suburbs of large cities. The underprivileged of low socio-economic status who live closer to the brute facts of life are less apt to abandon the practical and utilitarian outlook for a disinterested, intellectually curious, aesthetic point of view. The biological imperatives to acquire food, clothing and shelter clamour insistently for attention. Hence, an education which has no exchange value in these terms seems irrelevant, the more so as schooling nears its end and wage-earning becomes an imminent and attractive prospect. And a raising of the school leaving age to sixteen, making further inroads into the period traditionally associated with wage-earning, will only intensify impatience with an education which apparently lacks any sort of vocational relevance.

As Taylor has argued, it was a recognition of the motivational possibilities of vocational education which led many teachers during the fifties to align themselves with child and parental demands and to establish vocationally biased courses in secondary modern schools. That these led to a readier acceptance of schooling is indicated by the growing willingness of children to stay voluntarily at school beyond the statutory leaving age. And though they may have stayed on mainly to swallow the vocational bait, there is no doubt that many sustained or acquired a fresh interest in the traditional activities of the school, especially its extra-curricular activities. Older and more mature, they also brought a new sense of responsibility to the semi-disciplinary and 'administrative' roles traditionally played by senior pupils.

Provided that a motivational device is not mis-educational—that it is not intellectually, morally or aesthetically indefensible—our evaluation of it should focus upon the ultimate state of mind which it helps to engender. No educationist could lightly countenance the use of a considerable proportion of a school curriculum as mere 'bait' to motivate the learning of the remainder. Vocational education, which clearly has instrumental value in fostering a new attitude to schooling, ought also to be intrinsically valuable in furthering genuine interests, widening horizons and mediating valuable skills. There is an obligation upon schools which offer vocationally biased courses to avoid the temptation to introduce these prematurely and to discover how far these can be genuinely educational instruments; how far they realistically reflect the facts of industrial and commercial activity; how far they relate progressively to the content of courses in further education, facilitating post-school education rather than communicating skills and concepts which subsequently have to be unlearned.

This last point suggests an important additional criterion for evaluating vocational education in schools. We should ask of vocational courses, 'Do they build bridges into further education?' 'Do the products of such courses choose employment which makes the best use of their personal resources?' 'Do they choose voluntarily to pursue their education further in technical colleges?' 'Do they make a more realistic choice of college courses, get more out of these, better understand their objectives and co-operate more readily with college staffs?' In short, do vocational courses in schools assist in the fundamental educational task of cultivating a taste for education which reaches into adult life? In the absence of appropriate research, a fair working assumption is that they might have these results; and if it could be demonstrated that vocational courses in schools fulfilled this bridging function, it would be educationally sound to forge such a link between schools and colleges. Spence has argued that 'the fact that the progress from secondary to further education for the individual must, if it is to be successful, be a continuous, unbroken process has never received sufficient attention either nationally or locally'. (*The Place of Further Education in a Changing Pattern of Secondary Education*, p. 117) Colleges of further education should be able to draw support from the things which occur in schools and a developmental conception of education in which advanced conceptualisation grows out of a grasp of simpler concepts and principles should give some hint of the way in which one stage of education may be generalised in terms of the next. That the curricula of school and college should overlap would seem to be axiomatic in an education conceived on sound developmental principles. But the process should be genuinely developmental in that the latter grows out of the earlier. That is, the danger that the college will dictate the school curriculum has to be avoided. This does not mean that the school's vocational curriculum can or should be conceived without reference to the ultimate educational objective: rather, that with this in mind, the start should be made in schools consistent with the child's capacity for understanding.

Technical education in schools

In terms of the conceptual distinctions drawn in the last chapter, it is courses of a technical character (i.e. those designed to cultivate, through practice and theoretical study, the technical competence required to perform the skills of a craft, technology or profession) which are in need of most justification in schools. We have seen that industry itself does not favour such courses. However, if there were sound educational reasons for introducing them, industrialists' objections ought not to override these considerations and they might be persuaded to join consultations about the sort of technical education which the schools might provide.

For example, those for whom abstract mathematics has, initially, little intrinsic appeal, might improve their mathematical understanding if consideration of some industrial and technical applications of mathematics were an integral part of the course. And, indeed, this would not merely be sugaring an unpleasant pill: it would be educationally sound. The work of Piaget has convinced educationists that in the early stages of learning mathematics, a period of concrete-operational learning, when pre-symbolic number experiences are offered the child, is important for ultimate mastery of symbolic mathematical operations. And there seems no reason to doubt the value of concrete-operational experiences when any new symbolic mathematical operations are being learned, at whatever age. If learned mathematical procedures are ultimately to be applied to practical situation in 'real life', it is important that this possible concrete reference of mathematics should be built into the learning process. Otherwise the learner merely acquires a rote command of meaningless abstractions and non-applicable mathematical routines. Thus, if a concrete reference is necessary for any kind of abstract learning which is ultimately to be applicable in the world of concrete phenomena, it seems that in school mathematics, concrete exemplar situations from the world of technology, industry or commerce may more powerfully and relevantly illustrate mathematical principles than other sorts of concrete data, particularly at the period when vocational considerations are uppermost in the learner's thoughts. On this view, one would not be sacrificing 'pure' mathematics to narrow vocational considerations; one would be finding a way into mathematics by way of one sort of exemplar situation (the vocational) rather than another.

Thus, on distinctively educational grounds, the case for sweeping away technically oriented courses in favour of 'general education' needs examining in the light of the possibility of using industrial and commercial situations as concrete exemplars of concepts and principles we are trying to teach in the traditional school disciplines. This, presumably, is the sort of thing which Jenkinson had in mind when he argued: 'Perhaps the fundamental obstacle to secondary technical education is the inability of its opponents to sympathise with the idea that the vocational or technical element in it is a means of educating boys and girls rather than of putting them into certain jobs. It is justifiable not because it produces engineers or plasterers, but because its realistic content and practical applications are well suited to stimulate and guide the development of adolescents'. (1949, 301) There is even evidence that practical technical courses of the kind envisaged by Jenkinson are not entirely valueless when young people enter into work: they are not to be justified merely as bait for the practically minded child. The Schools Council (1968) noted that amongst the nineteen-year-olds whom they questioned, 'the proportion who thought that metalwork-engineering subjects were useful rose to over 80 per cent among those in engineering and motor maintenance' and 'over 80 per cent of the building and constructional trade workers considered that woodwork was a useful school subject'. Again, '77 per cent of office workers who had learnt commercial subjects at school thought these were valuable'. (p. 61) This evidence does seem to counter the views of those who hold that the teaching of commercial and technical subjects in school must always be unrealistic if its objective is to teach skills which will be of value in industry and commerce, rather than merely to provide sugar on the non-vocational academic pill.

One further objection to technical training in schools refers to the necessarily limited scope of the provision in any particular school and the danger of diverting children into technical courses which pre-determine their vocational decisions. In part, this problem should be eased by the comprehensivisation of schooling. Indeed, one argument for comprehensive education is that we need schools which could offer a wide variety of courses (aimed towards the great range of vocational outlets) which in the past have only been offered (if at all) in different schools and in different categories of school. But the real solution to the problem of technical training which appears too specialised is to identify broad ranges of vocational competence as the basis of courses of study which underpin a variety of specific crafts and professions within a broad occupational field. As we have seen, this would, in any event, be in line with the pattern of more generalised technical education which is widely canvassed as necessary to the future in a rapidly changing society.

Vocational orientation and the school

Although in the prevailing climate of opinion a case has to be made for *technical* education in schools (i.e. the theoretical and practical learning pertinent to distinctive occupational skills), the orientation function of vocational education should require less justification. Unless one takes the view that schooling should be absolutely discontinuous with later life, one of its consequences ought to be that towards its end it should provide some orientation towards the experiences of life which are to follow in the world outside. As full-time education draws to its close, it should provide the learner with some bearings into the world of work.

Perhaps the most deliberate and thorough attempt to provide orientation towards work is in the Soviet emphasis upon polytechnical education. The reform of the Soviet school system in 1959 was undertaken with the avowed intention of 'Bringing the schools into closer relationship with life'. In practice, this meant the intensification of polytechnical education at all levels from the primary school to the university. 'Polytechnical' can bear a number of interpretations in the Russian context. In part, its objective is frankly ideological. Every child must be attuned to the Marxist thesis that economic activity has a central role in Communist culture, and he must learn to value all sorts of work. But as well as this focus upon the moral imperative to work, part of the intention in the U.S.S.R. is to use polytechnical education to reveal the pattern and range of industrial organisation, as a cultural phenomenon, in an advanced industrial society. And a further aspect of this vocational orientation involves the child in the practical experience of industrial work. (Pemberton)

Foreign observers have noted that Soviet practice often ignores precept. Instead of acquiring a *poly*technical orientation—an experience of different modes of economic activity—the child is confined to a single factory or productive process, seeming to learn little but a rote mechanical skill. Nevertheless, the intention is otherwise and the philosophy of polytechnical education is reflected in other countries in the developing practice of giving secondary school children, in their last year at school, some experience of industrial, commercial and professional occupations, either on organised visits or on block release (for periods of about one month) into industry. In Sweden, a period of experience in work situations is a mandatory requirement of the curriculum in the eighth year (i.e. at the age of fifteen) of the compulsory school and in Norway a similar practice is becoming common.

In their Bulletins for January and November, 1967, the Confederation of British Industries noted a considerable recent growth in Britain of schemes to provide work experience for children. And despite the fact that about half of those employers' associations whose opinions of these schemes had been canvassed thought that 'the desired results could be better achieved in other ways', the C.B.I. itself concluded that the tide of events seemed to be in favour of such schemes. However, the Confederation also noted that many schemes 'have been unsystematically organised and have taken place without full regard to the legal, insurance and other considerations involved'. Clearly, the extension of this practice of giving children out-of-school experience is likely to create its own administrative problems. Quite simply, it could become increasingly difficult to find sufficient outlets to give children meaningful educational experience within industry. Industry itself might become loath to co-operate when inundated with children from the schools. In passing it is interesting to note that Russian educationists have claimed that the co-operation of Soviet industry in polytechnical education is facilitated because industrial enterprises in a socialist state are not governed by the profit motive: there is evidence, however, that Soviet management is not always sympathetic to the view that the adverse economic implications of work experience can be so easily ignored. On the other hand, Pemberton observed Russian children engaged in factories for long periods on simple repetitive processes which might be economically satisfactory, but which could have no educational value, except in the sense of teaching the necessity and social value of monotonous work. But Scandinavians also concede that in their schemes children are sometimes engaged in work of dubious educational value, and in Britain one has heard of children being sent for a month's work experience to the local garage, who have spent their time merely in serving petrol. Apart from this creating the danger that children will be exploited as sources of cheap labour, it is difficult to see how, on educational grounds, this sort of job experience makes sufficient disciplinary demands on the child, or provides insight into a sufficient range of occupational situations.

In the face of these problems of providing sufficient meaningful work outlets, one must approach with circumspection the fashionable view that in education (as, indeed, in life generally) direct experience is to be preferred to theoretical studies. Perhaps the best way of providing a genuine vocational orientation—through consideration of alternatives rather than mere experience of single work situations—would be to offer courses of study in which theoretical study of the world of work was given a concrete dimension through a variety of well chosen visits, talks by visiting workers, films, television programmes and other reality substitutes. Such courses might be of very short duration—concentrated, for example, into a month at the end of a normal term's work. The main problem in mounting courses of this kind could be a shortage of teachers having appropriate industrial experience, or knowledge of the developing industrial and commercial structure of the economy.

The School's Council found in its survey (1968) that careers work in the schools 'was predominantly handled by people who had little or no specific training for it; in just over half the schools the careers teachers had no training in careers work while in a fifth they had less than a week's training'. (p. 122) Ultimately, proper expertise in this area can only be cultivated through establishment of appropriate courses in teacher training establishments, together with secondment of existing teachers to gain experience of industry along lines similar to that in the pilot scheme described in the School Council's Working Paper (1966). This scheme had the Confederation of British Industry's full support and it has concluded that such valuable results have been achieved in furthering the good relationships between industry and the schools, that the scheme should now move out of its experimental stage and should be expanded as rapidly as possible. (Confederation of British Industry's Bulletin, April, 1967) As schools become comprehensive and grow in size, the problem of keeping a member of staff fully occupied with the task of organising vocational orientation should diminish, and the consequent overall decline in the number of secondary schools will reduce the aggregate demand for people with such qualifications. In an interim period when supply of such personnel falls short of demand, local authorities might employ appropriately qualified teachers on a peripatetic basis, who could offer short block courses or attach themselves to schools for part of a week throughout the school year.

Vocational education in the wider sense of raising the moral, social, aesthetic, religious, economic and political questions which relate to the work situation poses less of a teaching problem. We have already argued that vocational education ought properly to be regarded as an aspect of general education: that the opposition of general and special education is only justified as a protest against premature or exclusive emphasis upon a limited range of special studies. Especially in schools, general education should be a complex of disciplines which refer to many different aspects of human experience. Thus, as well as technical subjects and courses designed to promote vocational orientation, the curriculum should focus upon disciplines which help to illuminate many facets of human experience. However, whilst subjects like history, geography, religion, art, the natural and social sciences should be taught for their general values (in the sense of throwing light on a wide range of activities which are compounded in living), it is important to remember that work is part of this manifold of life activities which the 'general subjects' should help us to understand. Thus, in pedagogical terms, teachers of the traditional disciplines might well draw some of their exemplar references from the vocational sphere. This point has already been made with reference to a concrete-operational stage of learning mathematics. But it is arguable that the learning of history, religion and the social disciplines requires to pass through an appropriate Piagetian concrete-operational stage, in which concrete particulars of experience are categorised and classified as the raw material of abstract learning. (see e.g. Entwistle 1966) For example, concrete illustration of moral principles might be drawn from the moral dilemmas inherent in the work situation, as well as from those which are familiar in domestic, recreational, friendship or other social contexts. Much political activity of the 'pressure group' variety clearly originates in defence of the interests of groups of employees, consumers and industrialists. Thus, it is clear that the realistic teaching of politics will also need to be referred to the problems of power in the work situation posed by the conflict of interests between competing occupational groups.

Hence, even concepts and principles which are being learned within the academic disciplines for their intrinsic educational values may legitimately find exemplification in the vocational as in any other life preoccupation. And the reverse of this is that courses deliberately designed to provide vocational orientation will *use* concrete materials from the history, social studies, literature, religious knowledge, science and mathematics which are provided elsewhere in the curriculum as general or non-vocational education. Ultimately, attempting to keep the vocational and the 'general' aspects of the curriculum in their separate educational quarantines makes nonsense of the concept of education. Good education cannot avoid going repeatedly back and forth between areas of the curriculum where common concepts and principles occur. Maintaining a sort of academic apartheid between the general and the vocational can only impoverish both aspects of our educational provision.

8

Moral, Aesthetic, Social and Political Education in an Automated Society

It has been a recurrent theme of this book that the vocational aspect of experience embraces more than technical skill and the economics of buying and selling labour in the market place. The quality of vocational life derives as much from the worker's moral insights, aesthetic sensibility and his social competence as it does from his technical skill. In the last chapter it was argued that the ostensibly distinctive vocational and general areas of the curriculum are capable of mutual cross fertilisation. For example, the 'technical' content of the education appropriate to many occupations will consist of subjects which also have non-vocational values—mathematics, science, languages, the social sciences, ethics, the arts and crafts. In this event, the same educational experience will serve both the vocational and the general educational requirements of the student. We have also argued that those subjects which are usually offered in the schools as 'general' education may find their necessary concrete exemplar situations in the vocational area of life. This vocational relevance of the 'general subjects' is most often recognised in the cases of mathematics, science, craft and language study. In this chapter I want to argue the equally relevant claims of the moral, aesthetic and social disciplines as sources of vocational education, particularly in relation to an automated economy.

Moral and aesthetic education

It was implicit in our argument about the kind of alternative employment outlets which must be developed in order to maintain full employment that an automated society must pay greater attention to moral and aesthetic education. In Chapter 3 possible expanding employment opportunities were divided into two categories. The first of these embraced those industrial and commercial activities which are likely to expand in terms of the logic of automation itself. But those in the second group, the non-industrial services, are not subject to any *necessary* development consequent upon the growth of technological innovation. There is nothing inevitable about the growth of welfare services or the arts; nor is there a 'natural' demand for quality goods and services which put a premium upon craftsmanship. Growth in these areas of the economy depends upon individuals and communities making deliberate and calculated choices. The growth of these 'service' industries and professions depends upon our having *knowledge* that these are essential constituents of the good life and that we ought to expend some of our economic resources on these things.

Many of the services falling into this category are unlikely to be provided commercially. They require grants or subsidies which imply an increase in public expenditure. At present this is an unpopular conception since it involves increased taxation and a diminution of the balance of income which we have left to administer as private citizens in terms of personal consumer choice. Moreover, the welfare state is not self-evidently a good thing. There exist vocal, political and academic lobbies which, far from wanting extensions in this field, advocate erosion of such welfare measures as we already have. Public subsidy of the arts is even less popular. Thus, as communities, we are bound to be involved in moral and aesthetic choices (and ultimately in political decisions) about the allocation of economic resources to competing ends; in particular, in decisions about the desirability of enlarging the public sector (including the allocation of resources for the nurture of the under-privileged both at home and abroad) at the expense of that part of personal income which we devote to private consumption.

This amounts to saying that we have to decide how far we can pretend that we have the secret of the good life when all our senses bring evidence of the fact that we have hitherto made few inroads into the problem of transforming our affluent society into the good society. Most of our cities remain slums; little delights the eye and, as Galbraith has reminded us, the spectre of public squalor in the midst of private affluence is a constant reproach upon our civilisation. As Raymond Williams puts it: 'it is easy to get a sense of plenty from the shop windows of contemporary Britain, but if we look at the schools, the hospitals, the roads, and the libraries, we find chronic shortages far too often'. In a host of things both large and small there is ample public work to be done before the spectre of mass-redundancy need create any problem for the community. Indeed not only may automation be welcomed as a means of releasing men from the tyranny of industrial processes which has always disturbed us in industrial communities, but also as a means of releasing labour to provide those civilised amenities to which we pay lip service but pretend we can never quite afford.

It is sometimes argued (usually quoting what someone has said in the U.S.A.) that we shall soon have to start paying people *not* to work. But arguably, as long as a Manchester or a Birmingham disfigures the face of the earth (and I write as a native and willing resident of the former), not to mention a Calcutta or Bombay, it is foolhardy to pretend that the world's work is in sight of completion. Mention of cities in a continent of chronic poverty also prompts the question of how far we have a moral obligation to step up programmes of overseas aid, not as a form of charity or dole, but to assist capital formation in these areas without which, as automation intensifies in the high income societies, the discrepancy in the standards of living between the affluent and the deprived will surely intensify.

In the past we have usually argued that we cannot divert resources to these desirable constituents of the good life, and in face of the contemporary balance of payments problem, it may be good sense to encourage the production of exportable consumption goods, using a device like the Selective Employment Tax to drive labour away from service industries and into production of consumer goods. However, even in strictly economic terms, this can make sense only in the short run. Where labour has become a disproportionately high cost of production, reducing the price of exports depends upon the introduction of cost-reducing automation. A civilisation is in reverse gear which solves labour shortages by denying its service sector instead of resorting to technological innovation in the productive sector. But in the long run the automation of industry is inevitable and this fact, not the short-term expedients required by the British economy, is what should concern educationists. As we argued in Chapter 3, in this long-term situation, short of developing a communist economy in which economic goods are distributed in accordance with some principle other than that of the price mechanism, the maintenance of purchasing power depends upon our finding employment outlets in the non-industrial, service sector of the economy. The argument that we cannot afford these welfare luxuries will diminish in relevance: economically we cannot afford not to afford them.

However, the argument from economic expendiency, conclusive as this may be for some people, does not say anything about the *quality* of the services to which a society ought to devote the human resources made available by automation of productive processes in industry. Quite independent of the economic decision that we need to employ labour increasingly in the service sector of the economy, there have to be positive decisions about the kind of services we require in order to transform the merely affluent society into the good society. Automation can certainly liberate human resources to minister to those needs and interests which are constituents of the good life. But if this potential for good is to be realised, two things are necessary.

First, that we develop a conception of the good life which includes the notion of moral obligation to care for the unfortunate in our community and to promote individual welfare by the provision of better educational opportunities; secondly that the claims of the arts should be taken seriously when individuals and communities plan the deployment of their economic resources. But the realisation of this depends, partly, upon an awakening of our aesthetic sensibilities to demand the arts—whether as individuals or through public provision. It also depends upon our having the moral sensibility to meet the challenge to our sense of responsibility posed by the under-priviliged. We may decide to reject the notion that we are under any obligation to succour the weak, the chronically sick, the aged, or the victims of poverty overseas. But such a decision should develop not from a thoughtless, aggressively individualistic, egocentric morality, but from a sober consideration of the ethical principles upon which we ought to conduct our affairs and how widely, in human terms, we ought to accept some responsibility to bear each other's burdens. Such a rational consideration of the principles of morality might conceivably convince us that we have only obligations towards 'kith and kin', or that our hard-earned resources ought only to minister to personal affluence. But no morality which has ever imposed itself upon the credence of man has excluded some conception of fraternity or some notion of 'the public good'. The concept of the good life cannot be unashamedly and egocentrically hedonist; it must include some sense of obligation to attempt to make the good life available to all one's fellow men, especially the less fortunate.

From the moral and aesthetic standpoints we need to educate people to ask questions and articulate responses pertinent to the problems of how we ought to engage the resources of human skill which automation liberates. It is arguable that in the past both moral and aesthetic education have been neglected in English education. Moral education has consisted largely of indoctrination in a received ethic, through the media of religious education or history. Because of the prominence given to Old Testament history, emphasis has often been upon a moral code relative to the needs of a small Semitic tribe living in a peculiar, untypical social and political context. Through history we have often cultivated a nationalistic, jingoistic morality which makes it extremely difficult to universalise any moral prescription. There has been little attempt to help the young to articulate criteria applicable to moral judgments in a way which would enable them to grasp basic principles and apply these in novel life situations. This is not to argue that we should cease to provide religious education designed to discover what constitutes a distinctively religious experience and an understanding of peculiar religious concepts like God, faith, spirit, church, etc. Nor, in the context of moral education, does it prevent our teaching the Christian ethic as a concrete example of the sort of universalisable moral principles which might fertilise the good life. But since a rejection of the religious hypothesis does not logically entail the abandonment of the Christian ethic, the latter would benefit from being considered in an educational context where the intention would be to articulate a rational moral ethic capable of acceptance by men of various religious creeds or none. This problem of a rational approach towards moral education in a secular context has been discussed by Wilson and his associates.

In the past, aesthetic education has been equally inadequate in schools. For example, although laudable (and growing) examples to the contrary might be cited, we have not yet liberated ourselves from a tradition of musical education which begins and ends with 'singing', thus leaving most school-leavers with a musical education whose aesthetic horizons are bounded by 'Lass of Richmond Hill' and 'The British Grenadiers' and ignorant of a vast heritage of European instrumental music. The notorious unwillingness in Britain to patronise the Arts by comparison with Continental practice, suggests that something has been lacking in our approach towards aesthetic education. The conclusion that English education has signally failed in the realm of the arts has prompted Miss Jennie Lee, the Minister with Special Responsibilty for the Arts, to plan a programme for education in the arts at all levels in schools and higher education with the object of providing 'a total environment for children' in which the arts find a natural place.

Thus, there is a need for education of responsibility, sensibility and taste in relation to all aspects of public and private consumption. A better educated community should make different demands upon the economy on aesthetic and moral grounds. There should be more demand for the arts (whether publically or privately provided) and more concern for the welfare of the underprivileged. But we also need subtler tastes in order to challenge the machine. We need to become increasingly dissatisfied with mass production; partly in order to increase the individual satisfactions derived from what we consume, partly to increase (in the interest of full employment) the demand for goods and services in the production of which machines cannot replace men, because the character of the article or service arises from a peculiar juxtaposition of the tastes and talents of consumer and producer respectively. One consequence of our affluence might be the growth of an autonomous demand for high-quality products of artists and craftsmen, if only our aesthetic education were improved. This is to say that in relation to automation, a better aesthetic and moral education is required to free us from the tyranny of the mass society, to help us resist the advertiser's tendency to educate us towards a stereotype of taste, to refine our taste as consumers and to create an appetite for those 'goods' which we consume socially.

Better moral and aesthetic education may transform our value systems and engender the will to create a better society. It will not provide us with the instruments of social engineering required to implement our choices. It is little use our having admirable intentions if we lack the knowledge required to create the new social institutions necessary to realising our aspirations. Thus, better social education would seem to be a necessary correlate of improved moral and aesthetic education.

Social education

If our analysis so far has avoided the optimistic conclusion that automation is likely to usher in a utopian age of leisure, it might, nevertheless, be challenged as unduly optimistic in its conclusion that the problem of unemployment is soluble through the redeployment of labour in the manner described in Chapter 2. By comparison with the first Industrial Revolution, the technological and social changes which automation implies seem more radical and far reaching; and our experience of only quite modest innovations since the Second World War should have served to convince us that the only certain thing about technological invention is that it will proceed faster than even the most far-sighted innovator cares to predict. Yet the more gradual industrial changes of the past two centuries have left an appalling legacy of poverty, slum housing and factories, and poor industrial relationships which still remains to be liquidated. What cause is there for thinking that in the future we can do better? Is there anything new in the contemporary situation which the first Industrial Revolution lacked?

One such factor is the development of social science, bringing with it the possibility of our learning to match technical innovation with informed social engineering. It is not, as is often supposed, that man's scientific achievement outstrips his moral development, but that his capacity to invent new social institutions fails to complement his ability to master the physical environment. This is not to argue that we would not be better men if we were more sensitive to the need for moral and religious discipline; rather that we would probably have a healthier society if we developed our sociological competence.

The revolution in economic analysis associated with the work of Keynes illustrates the way in which the pattern of industrial and social life can be transformed through a development in social science. Formerly, there was a fatalistic acceptance of the trade cycle as part of the natural order of things. Cyclical depressions of trade and employment were thought to be beyond human control.

Now (although recent trends in the British economy might make us pause before claiming too much in this respect) we assume that we can iron out extreme fluctuations, maintain the level of trade and engineer full employment. Since the Second World War, mass unemployment has been unthinkable and whilst, writing in 1969, this optimistic conclusion has to be modified, the point is that even the new high level of unemployment has been deliberately engineered and is justified by politicians as an instrument of redeployment policy. We have not yet abandoned the conviction that we can control the level of unemployment, define its point of impact, use it to 'shake out' labour with low productivity or a low social priority and eventually reverse the trend when we are rid of our chronic economic and industrial problems. And if our attempts at social engineering are laboured and often misdirected it has to be remembered that social science is still in its infancy. By comparison with other disciplines in the academic curriculum, its findings are little assimilated, even by the well-educated.

Social science increasingly finds its way into the curriculum of higher education, but hardly yet exists in most European secondary schools. The introduction of social science into the curriculum of secondary schools is an urgent need for two reasons. First, as a basis for the development of social science in higher education—a necessary requirement for the development of sociological enquiry itself. But secondly, the provision of social-science courses in schools is the only adequate ground on which to cultivate the 'social literacy' required by every educated man. In the past, social studies in the curriculum has usually consisted of a synthesis of traditional subjects like history, geography, English, religious knowledge, even mathematics. This device is open to a number of objections, not least that these subjects have their own distinctive and necessary contributions to make towards a liberal education when imaginatively taught. But in the context of the present argument, social studies ought to be rooted in the social sciences themselves, if people are to be armed with the basic concepts—economic, sociological, legal, psychological, anthropological and political—upon which an intelligent understanding of social institutions and their roles within them is to be grounded. (Lee and Entwistle, 1966)

It has been argued that automation will provoke considerably more industrial and geographical mobility than has been customary in the past. This will be accompanied by greater social mobility as many more workers acquire professional and quasi-professional status and tastes. This social mobility is sometimes epitomised as a large-scale transition 'from proletariat to salariat'. The implications of being salaried rather than wage-earning need to be understood by many more people from that end of the social spectrum which has hitherto had little interest in the values of the professional classes. In terms of economic institutions one has to only to instance the considerable resistance of industrial workers to attempts to pay them at longer intervals by cheque. Quite different modes of domestic accounting and market behaviour are necessary from the salaried worker. With greater geographical and social mobility, a considerably increased proportion of the population is likely to be involved with economic and social institutions like banks, insurance, the law (in relation to property and trade), private housing, investment trusts and so on. Apart from the need to learn the functions of these institutions, using them intelligently and uninhibitedly requires the cultivation of non-servile attitudes towards professionals whom the working classes have traditionally regarded as their betters. This engagement with a much wider range of social roles carries the possibility of confusion, inhibition, conflict, and insecurity. Adjustment to this situation requires a richer concept of self and of the possibilities of self realisation. Hence, this likelihood of greater interaction with a wider range of persons through one's occupation, domestic management and leisure poses new problems for social education.

Political education

The upgrading of vocational and social intelligence implicit in the automated society also has implications for the development of that aspect of sociological awareness which is required for political activity. Almond and Verba found a greater disposition towards political activity amongst the 'salariat'. And these participant attitudes of the professional worker are likely to be manifest as much through his membership of voluntary associations or pressure groups, as though the more widely and conventionally accepted media of parliamentary institutions. In the conventional wisdom, being a democratic citizen means having the vote, exercising this quinquennially in national elections (and, less probably, in annual local elections), then sinking into a more or less disgruntled political impotence in the interval. But recently, political theorists have argued that the game of politics is like a perpetual bagatelle in which conflicting interest groups apply more or less constant pressure upon the agencies of government. (cf. Finer) I have discussed elsewhere some educational implications of this concept of 'associational' or pressure-group democracy. (Entwistle, 1958) To understand the mechanism of this extra-parliamentary democratic life is to be on the way towards a more intelligent and active democratic citizenship. The automated society will require our involvement with a larger number of social and economic institutions, and we require a mode of political education which explores the implications for democratic citizenship of an active participation in these.

Conclusion

This chapter has elaborated and exemplified the claim, implicit throughout our discussion, that the practice of an occupation has ramifications beyond the place of work itself and the technical and professional skills employed during working hours. To participate in the creation of wealth is to be committed to a consideration of how this ought to be distributed in pursuit of the good life for all one's fellow men. To produce goods and services is to be involved in considerations of quality, both in terms of the effect of the production processes on one's self-respect as a person and also in the interests of those who use the products of one's labour. Thus, moral and aesthetic education have contributions to make towards the development of vocational responsibility. Social education also becomes an urgent requirement as technological innovation involves men in new occupational roles, intensifies geographical and social mobility and, hence, widens the range of social, economic and political institutions which impinge on an increasing number of people in automated societies. Evidently, the need for social awareness and competence and for aesthetic and moral sensibility is not created by automation: they ought to be the product of a good education in any society. Perhaps, then, one has only been arguing that automation will require us to be better educated in terms of those experiences which characterise a sound education in any time and place. When a stagnant society is living on its moral, cultural and professional capital, it may be able to ignore much of this. But when confronted with the sort of dynamic change which characterises automation, the cultivation of forms of awareness which were mediated haphazardly or not at all by the schools takes on a new urgency.

9

Conclusion

Rejecting the conventional wisdom that education has no concern with those activities which have utilitarian or instrumental values and which appear to lack intrinsic justification, this essay began from the assumption that an education concerned with development of the whole man must bring him to the point where he is able to do a job of work with skill, intelligence, taste and a sense of responsibility. Our contemporary notions of social justice require that all men must work to live and, if the good life cannot be the Aristotelian life of leisure, work itself must offer its own intrinsic satisfactions. To see the work of the learned professions or of the creative artist in these terms does not require a great deal of imagination; but it does seem to be unduly stretching credulity to see any constructive or creative possibilities in the work of the unskilled factory hand. Hence, it has usually been argued that if most of our fellow men are to derive any satisfaction whatever from life, agreeable spare time recreations must be devised to compensate for soul-destroying work.

However, the notion that worthwhile leisure activities can ever compensate for degrading work is one of our less satisfactory myths. Similarly, the assumption that under automation the problems of an abundance of leisure are all that need concern us is economically naïve. It also misses the point that automation makes it possible to redeem work from the curse of Adam: not only does automation throw up work situations whose technical demands are closer to the capabilities of even the less able in our community, but it also opens up the way towards a redeployment of labour in directions required to transform our affluent society into the good society. This suggests the importance for an automated society not only of greatly expanded technical education, but also of moral, aesthetic and social education if our value systems and our sociological competence are to be adequate to the challenge posed by radical technological innovation.

Nevertheless, to think in terms of an automated society is, for some, to be engaged in science fiction. After all, in the space age most men have never experienced what it means to fly. Alongside computerised industrial production, there still exist traditional handicrafts and heavy manual industrial processes which expose the worker to dirt, disease and danger. In spite of the spread of domestic refrigeration, men still deliver milk daily on to doorsteps in all sorts of weather. Refuse is still disposed of unhygienically in dustbins emptied manually once a week and men even sweep the streets and the Underground. It seems that automation hardly touches our lives and its benefits seem a thing of the distant rather than of the imminent future.

However, the only certain prediction about future technological change is that it will probably happen quicker than we imagine. Only little more than a decade ago, colonisation of the moon was thought unlikely before the end of the century; now it would not be surprising if tomorrow's headlines celebrated this event. And automation is no less an immediate future prospect. Both sides of industry convene conferences, set up study groups, pass resolutions and issue publications on the problems of automation. One of these, published by the United Steelworkers of America, underlines the urgency of the problem: 'It is vital to our well-being as a nation that the problems of automation be solved, not in the distant future, but now and each day as they arise. Automation must not be allowed to develop into a headless monster destroying more than it creates. It must be guided for the betterment of mankind'. (Preface) But this is not merely an American problem. As early as 1956, The Trades Union Congress explored this problem in a pamphlet, *Trade Unions and Automation.* It concluded that automation could well benefit trade unionists but that the speed and extent of its introduction would be modest in the near future. Nine years later, a second pamphlet noted the unexpectedly rapid transition towards automated processes: 'there have been signs that the rate of technological change has been increasing and that some of the factors limiting the spread of automation are no longer as important as they were nine years ago'. (Trades Union Congress, 1965, 2) It concluded that 'automation and other forms of technological change are affecting the nature of work at almost every level in nearly all sections of the economy' (p. 24) and, like the American Steelworkers, the T.U.C. urged the growing importance of action by governments and employers to mitigate the possible evils of automation and to make its benefits as widely available as possible.

Educationists have a tendency to contemplate educational change apart from the dynamics of the outside world; for them, education is a casual factor upon which the re-creation of our civilisation must wait. Yet clearly, what faces us is not the prospect of our having the means to create an educational utopia, frustrated only by the unpleasant facts of life outside our classrooms. Nor is it a matter of waiting patiently whilst the environment laboriously responds to educational innovation. The danger we face is of a rapidly changing world of industry, commerce and the professions, with its attendant social and cultural change, to which education, burdened with obsolete concepts and techniques, fails to respond. If discussion by educationists of the relevance of technological innovation for their work goes by default, we shall be in danger of facing the end of the twentieth century with educational concepts appropriate only to the past.

If our view of human nature is such that we despair of man's capacity to create the good society in the future, as he has apparently failed in the past, this essay will have seemed unduly optimistic. But even if Utopia is always destined to elude our grasp, the point of this analysis has been to suggest that an automated society need be neither as catastrophic nor as destructive of our humanity as some of our science fiction seems to imply. Whatever the acceptable solution to the problem of automation it is important to discover it, plan it, popularise it and explore its educational implications.

Bibliography

ALMOND, G. A. AND VERBA, S., *The Civil Culture;* Princeton University Press, 1963.

ARISTOTLE, *The Politics;* Penguin Books Ltd., 1962.

A.S.S.E.T., *Automation;* An A.S.S.E.T. Publication, 1956.

BAGRIT, L., *The Age of Automation;* Penguin Books Ltd., 1965 (original edition, Weidenfeld & Nicolson, 1965).

BARBER, W. J., *A History of Economic Thought;* Penguin Books Ltd., 1967.

BEVERIDGE, W. H. B., *Full Employment in a Free Society;* Allen & Unwin, 1944.

BUTCHER, H. J., *Human Intelligence;* Methuen & Co. Ltd., 1968.

CARTER, M. P., *Into Work;* Penguin Books Ltd., 1966.

CASSIRER, E., *An Essay on Man;* Yale University Press, 1967.

CASTLE, E. B., *Ancient Education and Today;* Penguin Books Ltd., 1961.

Central Advisory Council for Education;
15 to 81 (Crowther Report); H.M.S.O., 1959.
Half our Future (Newsom Report); H.M.S.O., 1963.
Children and their Primary Schools; H.M.S.O., 1967.

Central Training Council, *Report to the Minister,* 1965.

Confederation of British Industries, *Education and Training Bulletin,* copies for January and November, 1967, September, 1968.

DIEBOLD, J., *Beyond Automation*; McGraw-Hill Book Co., 1964.

DURKHIEM, E., *The Division of Labour in Society*, Routledge & Kegan Paul Ltd., 1964.

DURKHIEM, E., *Suicide*; Routledge & Kegan Paul Ltd., 1966.

ELIOT, T. S., *Notes Towards a Definition of Culture*; Faber & Faber, 1962.

EMMET, D. M., *Function, Purpose and Powers*; Macmillan & Co., 1958.

The Engineering Industry Training Board, *First Year Training for Engineering Craftsmen and Technicians*, 1966.

The Engineering Industry Training Board, *Training Board Guides: Engineering*; Kogan Page Ltd., 1967.

ENTWISTLE, H., 'Educational Theory and the Teaching of Economics', *Economics*, Vol. 6, Part 4, 1966.

ENTWISTLE, H., *A Concept of Democracy and its Implications for Education*, M.Ed. Thesis; University of Manchester, 1958.

FINER, S. E., *Anonymous Empire*; Pall Mall Press Ltd., 1958.

FIRTH, R., 'Anthropological Background to Work', *Occupational Psychology*, Vol. XXII, 1948.

FISCHER, E., *The Necessity of Art*; Penguin Books Ltd., 1963 (originally published by Verlogder Kurst, 1959).

The Foundation of Automation and Employment Ltd., *Removing Obstacles to Automation*, Report of Conference at Chalfont St. Giles, 1965.

FRIEDMANN, G., *The Anatomy of Work;* Heinemann, 1961.

FREUD, S., *The Future of an Illusion and Civilisation and its Discontents*, in the complete psychological works, Vol. 21, Hogarth Press, 1961.

FROMM, E., *The Sane Society;* Routledge & Kegan Paul, 1956.

GALBRAITH, J. K., *The Affluent Society*; Penguin Books Ltd., 1962.

GALBRAITH, J. K., *The New Industrial State*; Hamish Hamilton, 1967.
HOLBROOK, D., *English for Maturity*; Cambridge University Press, 1961.
HUME. D., *A Treatise of Human Nature*; Book 1, The Fontana Library, 1961.
Industrial Training Council, *Craft Apprenticeship*, 1962.
National Joint Advisory Council, *Training for Skill* (Carr Report), 1958.
ISAACS, N., *Children's 'Why' Questions*, Appendix to Isaacs, S., *Intellectual Growth in Young Children;* Routledge & Kegan Paul Ltd., 1930.
JENKINSON, J., 'The Slow Growth of Secondary Technical Education', *The Vocational Aspect*, Vol. 1, No. 3, 1949.
KEYNES, J. M., *The General Theory of Employment, Interest and Money*; Macmillan, 1962.
LEE, N. AND ENTWISTLE, H., 'Social Studies in the Secondary School Curriculum'; *Times Educational Supplement*, July, 1966.
LILLEY, S., *Automation and Social Progress*; Lawrence & Wishart, 1957.
MACE, C. A., 'Satisfaction in Work', *Occupational Psychology*, Vol. XXII, 1948.
MACINTYRE, A. C., 'Against Utilitarianism', in Hollins T. H. B. (Ed.), *Aims in Education;* Manchester University Press, 1964.
MARX, K., *Capital* (2 vols.); Everyman's Library, 1962.
MARX, K., *Selected Writings* (Ed. Bottomore T. B. & Rubel M.); Penguin Books Ltd., 1963 (originally published by C. A. Watts, 1956).
MARX, K. AND ENGELS, F., *The Communist Manifesto;* Penguin Books Ltd., 1967 (Translation by Samuel Moore, first published 1888).
Ministry of Education, *Better Opportunities in Technical Education;* H.M.S.O., 1961.

MOORE, W. E., *Man, Time and Society;* Wiley & Sons Inc., 1963.

NEWMAN, J. H., *The Idea of a University;* Longmans, Green & Co., 1925.

NICHOLS, H. R., 'The Trade Union Approach to Automation', *Automation in Theory and Practice*, Hugh-Jones, E. M. (Ed.); Basil Blackwell, 1956.

PALMER, V. C., 'Young Workers in their First Jobs', *Occupational Psychology*, Vol. XXXVIII, No. 2.

PEMBERTON, A. R., *The Aim, Scope and Value of Compulsory Work Experience in Soviet Education*, M.Ed. Thesis; University of Manchester, 1967.

PETERS, R. S., *Education as Initiation*; Evans Bros. Ltd., 1964.

POLLOCK, F., *The Economic and Social Consequences of Automation;* Basil Blackwell, 1957.

RASHDALL, H., *The Universities of Europe in the Middle Ages* (Ed. Powicke F. M. & Emden A. B.); The Clarendon Press, 1936.

RIESMAN, D., *The Lonely Crowd;* Doubleday Anchor Books, 1953.

RIESMAN, D., *Abundance for What?;* Chatto & Windus, 1964.

ROSE, J., *Automation: its Anatomy and Physiology;* Oliver & Boyd, 1967.

ROSENTHAL, R. and JACOBSON, L., *Pygmalion in the Classroom;* Holt, Rinehart & Winston Inc., 1968.

SCHACHNER, N., *The Mediaeval Universities;* George Allen & Unwin, 1938.

The Schools Council, *Closer Links between Teachers, Industry, and Commerce;* H.M.S.O. 1966.

The Schools Council, *Young School Leavers;* H.M.S.O., 1968.

SPENCE, H., 'The Place of Further Education in a Changing Pattern of Secondary Education', *The Vocational Aspect*, Vol. XIX, 1967.

SUPER, D. E., *The Psychology of Careers;* Harper & Bros., New York, 1967.

TAYLOR, W., *Secondary Modern School;* Faber & Faber, 1963.

TILGHER, A., *Work;* G. G. Harrap & Co., 1931.

Trades Union Congress, *Trade Unions and Automation,* 1956.

Trades Union Congress, *Automation and Technical Change,* 1965.

United Steelworkers of America, *Steelworkers and Automation,* Pittsburgh, undated.

WEBER, M., *The Protestant Ethic and the Spirit of Capitalism;* G. Allen & Unwin, 1930.

WILLIAMS, R., *The Long Revolution;* Chatto & Windus, 1960.

WILSON, J., WILLIAMS, N. and SUGARMAN, B., *Introduction to Moral Education;* Penguin Books Ltd., 1968.

WISEMAN, S., *Education and Environment;* Manchester University Press, 1964.

WISEMAN, S., 'Educational Deprivation and Disadvantage', in Butcher, H. J. (Ed.), *Educational Research in Britain;* University of London Press, 1968.

Suggestions for Further Reading

Many of the references in the text provide hints to further reading, but it may be helpful to focus on those bibliographical items which bear most closely on the argument of the book.

A. C. MacIntyre's essay 'Against Utilitarianism' in *The Aims of Education* edited by T. H. B. Hollins (University of Manchester Press, 1964) is a clear statement of the view that education should be concerned with non-instrumental, instrinsically valuable activities. See A. Tilgher's *Work* (G. Harrap, 1931) for a discussion of the importance ascribed to work by different cultural and intellectual traditions. Hannah Arendt's *The Human Condition* (Doubleday Anchor Books, 1959) contains a more demanding discussion of the place of work in human culture. Donald Super's *The Psychology of Careers* (Harper & Bros., New York, 1957) illustrates the way in which occupations influence patterns and styles of living and his descriptions of vocational guidance in American high schools and colleges will be of interest to anyone concerned with vocational education. *Into Work* (Penguin Books Ltd., 1966) by M. P. Carter focuses on the problems of transition from school to work. Much valuable data on the attitudes of parents, teachers and pupils to this problem is contained in The Schools

Council's Enquiry No. 1, *Young School Leavers* (H.M.S.O., 1968), whilst the best source of discussion of the problems of vocational and liberal education is probably the journal *The Vocational Aspect*.

The simplest discussion of the implications of automation is in Bagrit's *The Age of Automation* (Penguin Books Ltd., 1962), but for simple technical descriptions of cybernetically controlled production processes which dispense almost entirely with human labour, this should be supplemented by F. Pollock's *The Economic and Social Consequences of Automation* (Basil Blackwell, 1957) or S. Lilley's *Automation and Social Progress* (Lawrence & Wishart, 1957). The attitudes of the trades union movement towards automation are admirably summarised in the Trades Union Congress's pamphlet, *Automation and Technical Change* (1965).

Finally, J. K. Galbraith's *The Affluent Society* (Penguin Books Ltd., 1962) and David Riesman's *Abundance for What?* (Chatto & Windus, 1964) raise important questions pertinent to the discussion of the implication of technological change for moral, aesthetic and social education.

S.C.E.R.T., West Bengal
Library
Calcutta
25/3, B. C. Road

The Students Library of Education

General Editor: J. W. Tibble
Emeritus Professor of Education, University of Leicester

Editorial Board : *Professors Ben Morris, Richard Peters, Brian Simon and William Taylor*

This series has been designed to meet the needs of students of Education at Colleges of Education and at University Institutes and Departments. It will also be valuable for practising teachers and educationists. The series takes full account of the latest developments in teacher-training and of new methods and approaches in education. Separate volumes will provide authoritative and up-to-date accounts of the topics within the major fields of sociology, philosophy and history of education, educational psychology, and method. Care has been taken that specialist topics are treated lucidly and usefully for the non-specialist reader. Altogether, the Students' Library of Education will provide a comprehensive introduction and guide to anyone concerned with the study of education, and with educational theory and practice.

The Students Library of Education

Available in two editions, library and paperba

370·1
ENT

93

Books already published:

*The Study of Education	J. W. Tibble

METHOD ETC.

Changing Aims in Religious Education	Edwin Cox
Spelling: Caught or Taught?	M. L. Peters
Students into Teachers	Mildred Collins
Environmental Studies	D. G. Watts
Reading in Primary Schools	Geoffrey R. Roberts

HISTORY

The American Influence on English Education	W. H. G. Armytage
The French Influence on English Education	W. H. G. Armytage
*The German Influence on English Education	W. H. G. Armytage
*The Russian Influence on English Education	W. H. G. Armytage
Social Change and the Schools: 1918—1944	Gerald Bernbaum
The Foundations of Twentieth-century Education	E. Eaglesham
Mediaeval Education and the Reformation	J. Lawson
The Evolution of the Comprehensive School 1926—1966	David Rubinstein and Brian Simon
Recent Education from Local Sources	Malcolm Seaborne
*Change in Art Education	Dick Field
The Changing Sixth Form in the Twentieth Century	A. D. Edwards

PHILOSOPHY

The Philosophy of Primary Education	R. F. Dearden
Perspectives on Plowden	R. S. Peters
Education and the Concept of Mental Health	John Wilson

PSYCHOLOGY

An Introduction to Educational Measurement	D. Pidgeon and A. Yates
Group Study for Teachers	Elizabeth Richardson
An Outline of Piaget's Developmental Psychology	Ruth M. Beard
Human Learning	H. S. N. McFarland
Modern Educational Psychology	E. G. S. Evans

SOCIOLOGY

The Social Context of the School	S. John Eggleston
Culture, Industrialisation and Education	G. H. Bantock
The Role of the Teacher	Eric Hoyle

* Library edition only

Humanities Press

Printed in Great Britain